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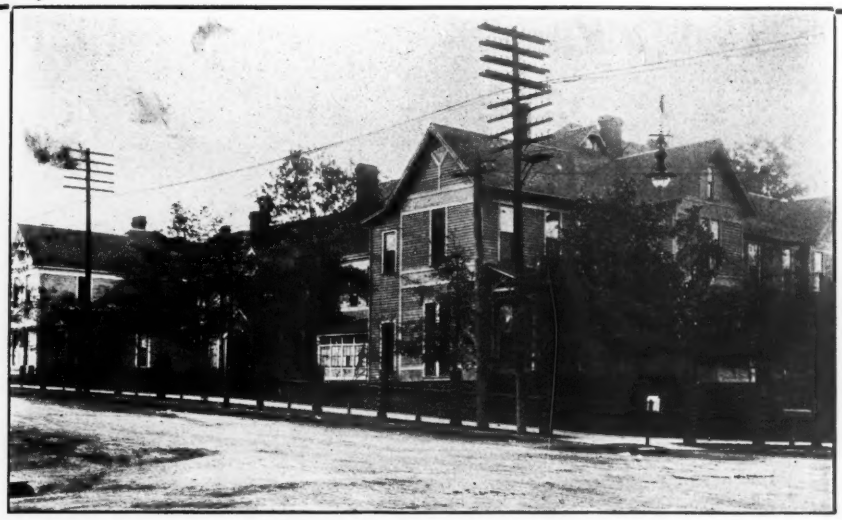

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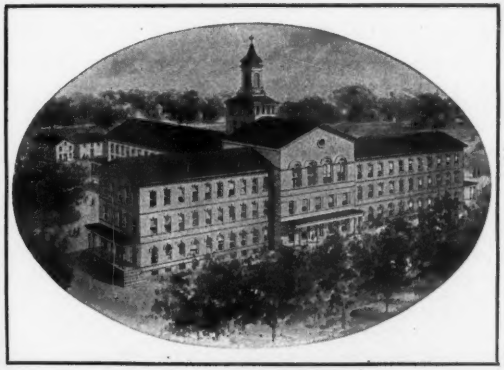

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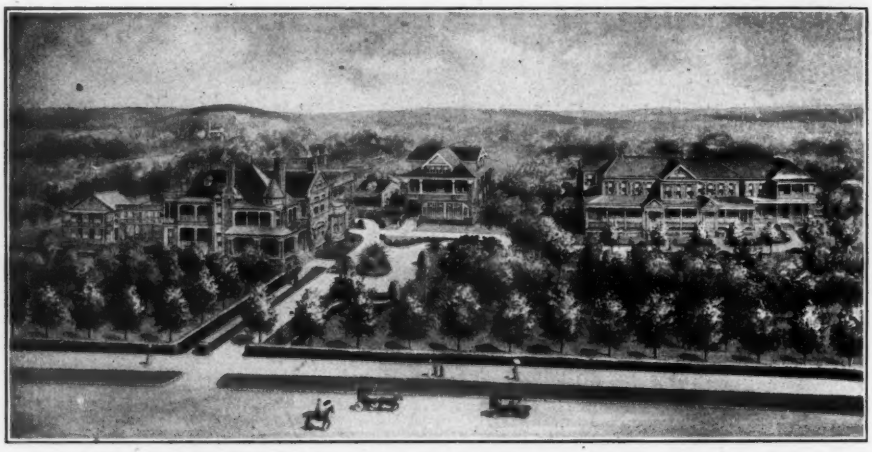

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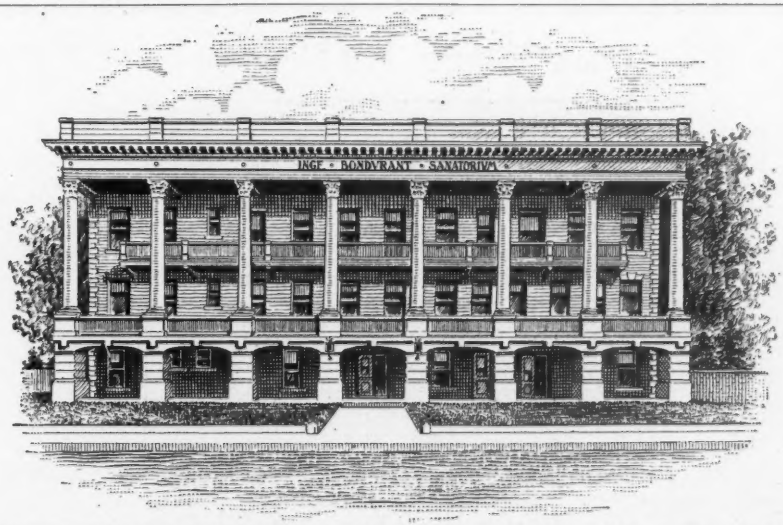

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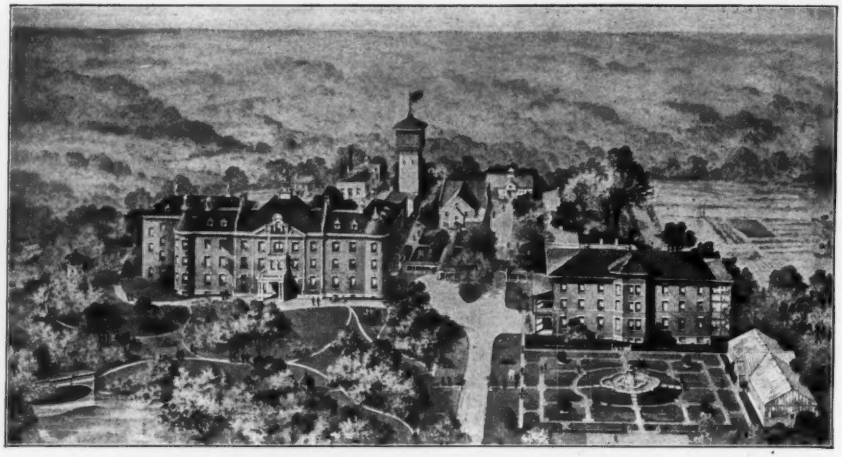

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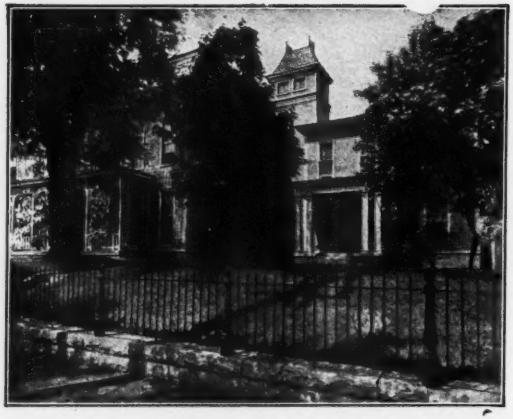

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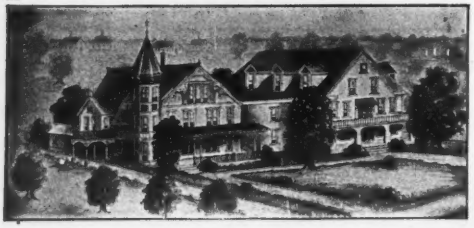

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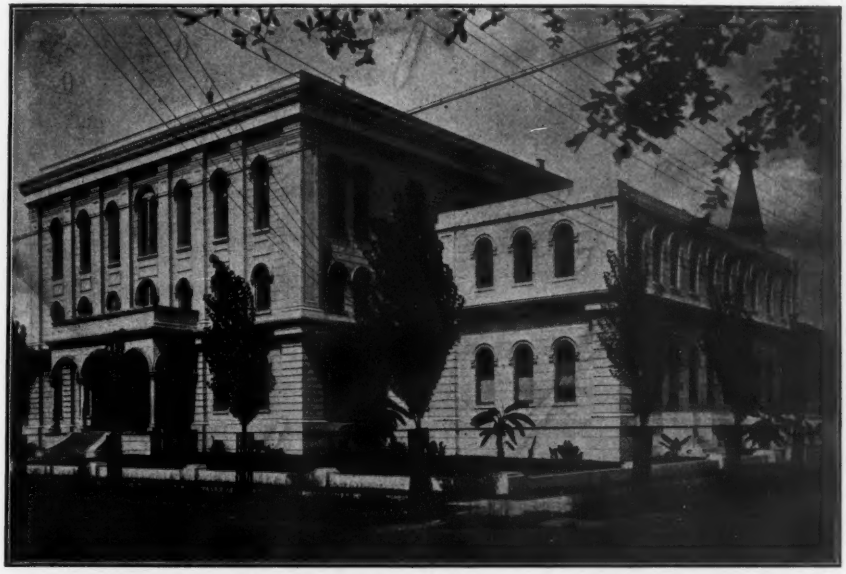

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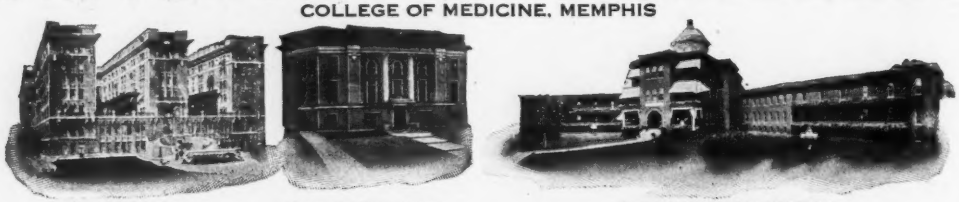

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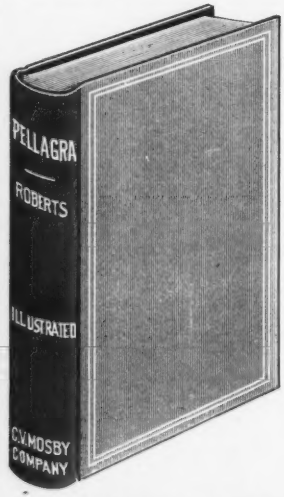

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ORIGINAL ARTICLES

PERITONITIS.*

By RICHARD A. BARR, M.D.,
Nashville, Tenn.

My object in writing this paper is not to report a series of cases treated by a certain line of procedure, varying in some slight way from those usually employed, with successful results and the consequent inference that the variation was responsible for the low mortality. There are just two features of the subject that I wish to consider.

One is the belief that is more or less widespread in the profession that peritonitis is rather a physiological than a pathological process, and that, even granting it to be pathological, there are methods of cure almost infallible. This belief is not confined to the rank and file of the profession who see cases with comparative infrequency, but who keep in touch with Murphy and the others who have been unusually successful. There are surgeons of experience who draw the inference from their own work that they are no longer afraid of diffuse septic peritonitis. In a paper read before the surgical section of the American Medical Association at its last meeting at Los Angeles by a prominent surgeon of the Middle West, and printed in a recent issue of the Journal of the American Medical Association, the following sentence occurs: "If then, we are no longer afraid of diffuse septic peritonitis, why should we hesitate to remove the appendix?" The removal of the appendix is a matter we are not considering here. However, the internist might as well ask: "Since there is no reason for fearing diffuse septic peritonitis, why should the appendix ever be removed?"

While there has been much written and said that is sane and sound enough to offset any undue confidence in the ability of the surgeon to handle diffuse septic appendicitis with a negligible mortality, it is the spectacular that attracts the attention most readily and that persists in the memory. An undue proportion of successful results get into print, for the man who has had a low mortality rushes to publish his series of cases. His pride in his work, his belief that he is blazing a path that others can follow with success proportioned to surgical ability, impel him to put his results before the profession.

The man with a definite mortality, unless his position in surgery is secure, is none too certain that he has been doing his work properly. He has a fear that he may be merely publishing his own shame, and that at best he will injure himself and bring no profit to the profession by publication of his experience. It requires moral and other kinds of courage to go to work at the present time to prove by report of cases that diffuse septic peritonitis is still deadly. Yet we have men in the profession with all the courage needed, and a review of the recent literature on peritonitis will convince any man who does not worship at the shrine of some particular surgeon, or does not ride some special hobby, that there is more than a difference in surgical

*Read before the Section on Surgery of the Southern Medical Association, Hattiesburg, Miss., November 14-17, 1911.

skill or a difference in plans of treatment back of the variation in results reported by different operators.

My own belief is that Dudgeon and Sargent are correct in attributing this variation to difference in the character of infection. They consider certain types of the infection almost certainly fatal, no matter how handled. There are many competent pathologists as well as surgeons who do not join in this belief, and I have no evidence of any value to produce in substantiation of it. However, their experiments and observations appear to me so conclusive, and my own limited experience has followed so closely what their theory would lead me to expect, that for the present I accept their conclusions.

There is a definite mortality connected with peritonitis when diffuse and even when localized. Leaving all theories aside, it is this fact that I wish to urge home, and particularly do I think it should be urged home on the internist.

It is true that the peritoneum has wonderful powers of combating infection. It is true that we have learned to take advantage of these powers, and to do nothing during operation to handicap them; but peritonitis is no more a physiological process than is nature's resistance to infection elsewhere, and, in spite of the most intelligent handling, peritoneal infection will cause death.

Many in the profession believe that there is a surgical treatment of peritonitis *per se,* and that it is very reliable if properly carried out. Some seem to think that it is almost a question of cutting out the peritonitis. Even among surgeons you will find evidences of confusion of ideas as to what they have done at operation. For instance, the title of a published article is not infrequently the treatment of peritonitis, while the article itself may actually be written about appendicitis or some similar condition complicated by peritonitis. This is clear, for the surgeon describes his technic for rapid disposal of the primary focus without traumatism to or handling of the peritoneum, and very possibly closes the belly wall tight, even in the face of extensive exudate. The peritoneum is left to shift for itself, and wisely so. What he has done for the peritoneum has been to cut off the source of infection. I am not criticising his technic. I am differing with him in his belief that he is treating the peritoneum surgically. He has that belief, and he is impressing his belief on others. He has treated the primary focus, and probably the majority of surgeons at the present time do little more than this in operating in the face of peritonitis. What should be done under the circumstances is a matter of interest mainly to the surgeon and will be discussed briefly in closing. To repeat, the peritoneum is by most surgeons left to take care of itself. In the majority of instances it can do so. There are infections, however, which, once implanted on the peritoneum, are hopeless. The frequency with which these types of infection occur will vary in the work of different men. They come to all sooner or later.

If certain cases of infection are surely fatal once the peritoneum is involved, and if in any case the peritoneum must be left alone to fight such infection as has occurred prior to operation, the only safe plan of procedure is to anticipate peritoneal involvement by making early disposition of conditions that are liable to be so complicated. If the family doctor is once impressed with the fact that surgical skill is helpless in the face of certain infections, there will be fewer cases of peritonitis developed. It is true that a great deal of the glory of life-saving in the usual types of infection would be taken away by this candid confession. A belly full of pus gives the surgeon a fine chance to magnify his value as a life-saver and his judgment in prognosis. It makes a better impression to claim to save a life by knowing how to treat the peritoneum than by merely knowing how to let it alone. To say frankly, if this patient gets well, it

will be because this type of infection is not deadly, does not give the surgeon so much immediate prestige as leaving the impression that he has done militant surgery. It is this idea that militant surgery can be done that leads the family doctor to delay. Widespread knowledge of the good results gotten in certain series of cases by the Murphy plan of treatment, or one of the various modifications of it, has done as much harm as was done by misapprehension in the early days of the Oschner treatment. The internist position is rational, too, loking at the question from the standpoint of some statistics, and there is probably no other type of lie so convincing as statistics.

If there is a reliable, not to say infallible, surgical treatment for peritonitis, why submit to operation in order to prevent the possible development of it? From this point of view you can hardly be surprised at the cheerfulness with which the Murphyized internist confronts you with a case of peritonitis. He thinks the surgeon has no kick coming to him. A safe surgical condition is turned over to him. Formerly the surgeon could say that such a case was not strictly surgical. It had been watched until it had passed through the strictly surgical stage, and there was present a complicating medical condition for which the internist must assume the whole responsibility. Not so at present. The surgeons are supposed to have established peritonitis on a safe surgical basis, and what more can they expect than to have such conditions turned over to them.

Would it not be nearer the truth to state that peritonitis is not a surgical disease, but that the primary focus is surgical in most instances, and less hopefully so with a lapse of time? Certainly this is the inference to be drawn from the most popular plans of treatment now in vogue. In operating on the primary focus the surgeon is careful not to infringe on the peritoneum. His treatment of that membrane is likely to go no further than putting in a drainage tube, or he may possibly wash or mop out some of the exudate.

A clear-cut statement of the facts may rob the surgeon's work of some of the glamour that can be successfully thrown around it, but not of such glory as is justly his, and it will bring the family physician to a keener realization of the risk and responsibility of delay. It cannot be denied that improvements in technic in handling conditions complicated by peritonitis, coupled with an appreciation of the resentfulness of the peritoneum itself to handling, have greatly improved operative statistics.

On the other hand, it cannot be denied that loose talk like the statement already quoted, a superficial acquaintance with certain statistics of a series of cases of spreading or spread peritonitis, and an imperfect knowledge of the significance of peritoneal exudate seen evacuated at operation have created a false feeling of security with regard to the surgical curability of peritonitis. Feeling that this sense of security is false, I will quote a few statistics gotten from recent literature to prove that not all surgeons are equally lucky, skillful or truthful, or are not equally qualified to judge peritoneal pathology. Until this at present unidentified variant becomes a constant in surgeons, let us have a wholesome fear of peritonitis. Once uniformity is established, our results must be better than even the best now published to justify a contempt for the danger peritoneal infection carries. A mortality of 10 per cent, or even of 4 per cent, in conditions complicated by peritonitis, would rank them high among surgical risks.

Murphy—S. G. & O., June 1908—51 cases perforative appendicitis, 2 deaths.

Eisendreth—paper read before M. V. M. A., Nashville, Tenn., October, 1911—33 cases peritonitis complicating appendicitis, 3 deaths.

Smid—quoted by J. A. M. A., 1911—reports from Kortes Clinic 235 cases rinsed, 40 per cent mortality; 123 not rinsed, 43 per cent mortality.

Hartwell—A. of S., 1911—12 cases of extensive spreading peritonitis, no deaths.

Morrison, J. Rutherford—B. M. J., October, 1911—reports 25 cases D. S. P. operated during 1910 at the Royal Victoria Infirmary, Newcastle, 12 deaths; 8 not operated, 6 deaths.

Wainwright—S. G. & O., November, 1911—20 cases of acute appendicitis with free pus, 9 deaths.

Fowler, R. S.—J. A. M. A., November, 1911—reports to November, 1910, 194 cases D. S. P. from appendicitis, 29 per cent mortality.

Kennedy—S. G. & O., 1911—500 cases, 9 deaths.

Davis—S. G. & O., 1911—39 cases D. S. P., 3 deaths.

Gerster—Annals of Surgery, 1910—461 cases D. S. P. from appendicitis (1899 to 1908), 31 per cent mortality; mortality during 1908, only 14 per cent; mortality in D. S. P. complicating other conditions than appendicitis varied from 46.1 per cent in gastric and duodenal ulcer to 100 per cent in mesenteric thrombosis and perforation of malignant tumors.

McWilliams—A. of S., 1911—83 cases of G. P. at Presbyterian Hospital, New York, 1906 to 1909 included, mortality 42 per cent. These cases complicated appendicitis.

Deaver—A. of S., 1911—states mortality in diffuse peritonitis at 8.1 per cent.

To briefly consider what surgery can do in the way of rendering assistance in conditions complicated by peritonitis is the purpose of the rest of this paper.

The question of elimination of the focus from which peritonitis has started, while pertinent to the treatment of peritonitis, is hardly a part of the treatment *per se*. The character of the focus, the ease with which it can be located, the probability of satisfactory removal or sequestration, the involved amount of handling of the peritoneum, the desperateness of the patient's condition, etc., will determine the advisability of surgery directed at the focus itself. This work—that is, the actual operative technic directed at the primary focus—is necessarily in itself a detriment to the peritoneum. To that extent, and by whatever strain is thrown upon the patient by the anaesthetic, actual damage is done by operating. To determine when this will be more than offset by the advantage of cutting off the source of the supply of infection is one of the most difficult questions the surgeon is required to decide. While we are not considering this question here, I do not believe it out of place to say that we must have some established rule of procedure; that each case must not be a law unto itself, as is frequently stated in discussing surgical indications in different conditions. It is a poor guide to those looking for advice. In fact, such an attitude is merely begging the question. A man must have some rule to go by, for few of us have an intuitive knowledge of what is best suited to the individual case. The man who uniformly operates in a certain class of cases usually considered surgical will certainly lose some that might get well if left alone. So the man who uniformly does not operate in a class of cases that might be considered surgical will lose some that operation might save. The man who depends on intuition or his keen judgment to guide him in an individual case, and particularly if he cannot explain the cause of his decision, is more than likely self-deluded, and, unless protected by sheer luck, will in all probability lose more than either of the others.

Real surgical intelligence and judgment come into play in grasping the underlying principles and in establishing rules of procedure that will get the best results when adhered to uniformly. The individual patient may suffer from the application of the rule, but he had better take his chances so than to trust to anyone's intuition. There is one argument sometimes used by surgeons in sidestepping the responsibility of operating on desperate conditions to which I wish to pay

my respects. He will say that operation gives the patient very little, if any, better chance than expectant treatment, and a surgical death might dissuade others from having surgery done at the time of election. The surgeon's responsibilty is to the individual case. You would hardly expect to hear of this surgeon refusing to operate on what appears to be a favorable case of peritonitis, for instance, for fear the patient might get well and so encourage other weak individuals to wait for the onset of peritonitis and possibly get into a hopeless condition.

Coming down to consideration of the inflamed peritoneum, I shall consider individually some operative and post-operative measures ordinarily instituted.

Flushing. There are many surgeons on the continent of Europe, in England, and even in this country, who still flush the abdomen. It is usually, but not always, done with great care to avoid handling the peritoneum and without eventration. By most a tube is used to introduce the fluid, and ample provision is made to allow for its prompt escape. This flushing is not by any means confined to cases with escape of contents of the hollow viscera into the cavity. By some of the very best men it is done uniformly in cases of spreading peritonitis. Some prefer this for the very substantial reason that in parallel series of cases those that were rinsed gave a lower mortality than those that were not. It is undoubtedly true that there are types of exudate the removal of which will result in benefit, provided it is accomplished without loss of time or traumatism to the peritoneum. While disseminated exudate is not by any means evidence of disseminated inflammation, it comes nearest being so in the more virulent types of infection—the kind in which we would like to remove the exudate. This dissemination of inflammamtion as well as of exudate makes the removal of the latter difficult and dangerous. Then, too, the presence of the exudate is proof in itself that absorption is being outdone by production. We have evidently a crippling of the powers of absorption or overproduction of fluid when free fluid is present in the cavity. Since the absorbent agents are doing all they can in their crippled condition, robbing them of the excess temporarily will do the patient little good. To really make good on this plan it would not only be necessary to remove the excess of fluid, but also to make provision to keep down production, or for continued removal of the excess so as to keep down tension. Murphy says relief of pus tension is all-important: "Reduction of tension must be initial and the absence of pressure continued. These purposes are accomplished by drainage." To my mind the satisfactory removal of exudate is so difficult to accomplish, and even the temporary relief of tension so utterly impossible of accomplishment, that so far I have made no effort to remove fluid except by mopping up such as comes within the operating field. Should I change this method of procedure, it will be by adding the use of a Blake syphon tube or some such apparatus. I feel that in this way the larger accumulations in the pelvis and elsewhere can be removed with the least traumatism. There is certainly little to be said in favor of extensive mopping instead of irrigation. Extravasated visceral contents certainly call for removal where peritoneal exudate might be left alone. Here again syphonage or suction should have the preference.

Drainage. My own custom is to drain only for local effect. In abscess pockets that have been shut off by adhesions long enough to change the character of the peritoneum—where necrotic tissue or tissue that is likely to become so is left behind—when lack of confidence is felt in a suture line, etc.

The idea of relieving intra-abdominal tension by a drain in the pelvis does not appeal to me as rational. If so, why not use this simple procedure to coax distended coils of intestine that have escaped during operation back into the cavity. Some operators say that

a drain in the pelvis will relieve intra-abdominal tension, but claim that a gauze drain is necessary for this purpose. The idea of capillarity being necessary to overcome tension is a new one. It is the presence of gas within the whole that makes local drainage in the abdomen so satisfactory before adhesions are formed. But for this there would be no local drainage except by gravity or capillarity. Mutual pressure of the coils of intestines around a local drained area shuts it off, and so uphill drainage of a section of the abdomen is almost as satisfactory as if made in the direction of gravity. The same factors that aid local drainage make drainage of the general cavity a failure—that is, gas pressure at first, and later the formation of adhesions, which takes place promptly (six hours in reactive cases—Yates). Murphy states that in patients who resist the initial dose of infection the cavity is converted into a circumscribed abscess by the blocking of the lymphatics, and incision is all that is needed.

Fifty-one cases of perforative peritonitis, with no deaths *per se*, and only two from complications, justify his operative plan, but do not prove that his theory is correct or that every detail of his statement is essential. For instance, these results do not prove that his pelvis drain acted as such for the general cavity. The drain, if useless, would not have influenced the favorable outcome of his cases, in all likelihood, though a drain probably increases the danger of obstruction and of infection of the operating wound when brought out there. Drainage of the general cavity of the peritoneum has been proved (Mikulicza) to be a physical impossibility under all conditions, and I can see no reason to believe that a pelvic drain has more than local value. It may anticipate the development of abscess formation there, but such localization will occur so infrequently that I prefer to wait for it and drain after it occurs. Pelvic accumulations represent but a small part of the exudate in generalized peritonitis, and the danger of their absorption during the height of the infection with cofferdammed lymphatics is slight.

Fowler's Position is necessarily a strain on the heart, and can only be justified by positive demonstration of the feasibility of draining the general cavity by gravity and a tube in the pelvis. There is certainly no justifiaction for setting a patient up before operation unless it is known that the focus of infection is below the level of the umbilicus. I am coming more and more to allow my patients after operation to assume the position that is more comfortable to them.

Saline Solution. I use saline by the Murphy method of proctoclysis, and subcutaneously in urgent cases. I have never done appendicostomy for the introduction of salines. It should prove satisfactory for that purpose, but could hardly be justified unless proctoclysis and hypodermoclysis were known to be unsatisfactory or impossible.

I have had no experience whatever with the use of oxygen or camphorated oil introduced into the cavity, nor have I used the vaccines.

With regard to drugs, I believe in the use of morphine before and after operation. In my opinion, opium does not mask symptoms. It may lull the patient into a fancied sense of security; not so the physician in charge. A history of the amount of morhpine required to quiet a patient is about as instructive as a sight of the suffering patient. I much prefer a patient who has been narcotized to one that has had persistent efforts made at purgation. The administration of purgatives in acute abdominal troubles is only justified by excluding their surgical nature or by waiting until after operation has been performed. After operation I give calomel promptly, and at the same time give enough morphine hypodermically to quiet pain and excitement. I have never found that morphine causes any difficulty in getting the patient's bowels moved. In fact, in my opinion, the only contra-

indication to the use of morphine after operation is an idiosyncrasy on the part of the patient.

DISCUSSION.

Dr. Parham.—It is interesting to go back and study the history of the development of these modern ideas as regards the treatment of peritonitis. John G. Clark some years ago did a great deal of harm by suggesting the filling of the abdomen with saline solution, and the elevation of the patient's pelvis, taking advantage, as he thought, of the anatomical fact that the most important absorbents lie in the upper part of the peritoneal cavity, and especially on the diaphragm. His idea was that the dilution of the toxins and other bacterial products would permit the absorbents to pick them up without danger to the general economy. But our experience with the method certainly has led most of us to conclude that this is a bad surgical practice. Thus, many of us followed that plan until we found our mortality was increasing. We saved comparatively few cases. I can look back to the time when it was a rare thing to save one of these cases of an abdomen full of pus due to ruptured appendix.

Murphy in 1907 or 1908 suggested, in the report of a remarkable series of cases referred to by Dr. Barr, the opposite plan—the elevation of the head of the patient and the use of the rectal absorption of saline solution.

Certainly I can agree with Dr. Barr that since I began to carry out that method, whatever its real value may be, in my experience I have had such a very great difference in my mortality that I now approach those cases with something of a feeling of confidence, at least, that they need not die.

Now, gentlemen, it seems to me, and I don't want to go into this subject too far, because the time is getting late and the subject is so extensive, that we can hardly hope to discuss it as adequately as would be justified, but it seems to me, if I understood Dr. Barr, he said that our treatment was two-fold—the mode of our treatment was two-fold: First, to remove the cause, and second, to treat the peritonitis, did you not?

Dr. Barr.—Not to treat the peritonitis.

Dr. Barham.—Well, I am glad to be corrected. That is exactly what I was going to insist upon, and I was going especially to call attention to the treatment of gunshot wounds of the abdomen, as illustrative of the contention.

I believe today that no surgeon is justified, where he can satisfy himself that the perforation of the abdominal wall, or penetration, has taken place, to let a patient go any length of time, after he sees him, without opening the abdomen and removing the cause; that is, sew up the perforation.

Now, I believe that that is all that can be done. I never wash out the abdominal cavity in any of those peritoneal lesions. It is a remarkable fact, and I think it is worth calling attention to here, however much Dr. Bryant and myself and others may be convinced that we have got hold of the best treatment in that outlined by Murphy, that a series of cases, parallel cases, were reported by two gentlemen in Philadelphia, one the surgeon in charge and the other his assistant, where one washed out his cases and the other did not, and the mortality was about the same.

Dr. Barr.—Dr. Stewart did the opposite of Murphy.

Dr. Parham.—His assistant did the opposite, with only a difference of one in mortality. Where there is a difference of only one, I don't think you can assume the superiority of the one over the other.

I want to thank Dr. Crisler for the suggestion just made. I should not personally have the temerity to pour tincture of iodine into the peritoneal cavity, for fear of doing harm, but I am satisfied it may do good in some localized infection. We have for a long time practiced the use of iodine in other localities of surgery. I got this idea originally from Dr. Mayo, and have practiced it now for a long time. In cases of extensive osteomyelitis I have done the complete operation of removal of the necrotic bone and have put iodine all over the surface before turning the esmarch loose, and I have had in such cases, such a marked improvement in rapid recovery and the absence of infection, that I continue to carry it out. I think the good effect is not from the disinfectant action of the iodine, but from its power to block the lymphatics. I should hesitate, however, for the very reason that I give, to introduce it throughout the peritoneal cavity, because you don't wish to block too extensively the lymphatic powers of absorption.

Dr. Perkins.—When reading or hearing a discussion on any up-to-date medical treatment, I am reminded of the beautiful old history of the sky rocket. It starts out with a little glimmer and then comes a rush of sparks and gradually it increases, and from the deal of statistics this seems destined to travel on to the zenith. At the time we are convinced that it is not going to stop, there comes a crash—and that has been true, unfortunately, of so many things introduced in medicine. The treatments by operation would come as No. 1; when a man reports three cases, another man fifty and another man two hundred and fifty cases, about the time we think the thing is going to take its position as one of the foundations of medicine in the future, some one notices that the sky rocket has been a fake.

It seems to me that in watching this line and that one, we are inclined to assume the position of old Diogenes, who sought an honest man and could not find one and went into a tub. We can see that there is nothing to it, and that this or that method is worthless, and that this thing is going to settle all of our difficulties. We have been in the mire, but now we are going to get one hundred per cent of successful results. Now, I say that there is no such thing as one hundred per cent of successful results in medicine, whether surgery or therapeutics.

There is no such thing as doing exactly right. Doctors would not have so many anxious moments if they knew that they were right all the time. You cannot be guided by that or this man's statistics. In the treatment of peritonitis, the last word has not been said, but we cannot assume the position that all these methods have no value. I do not intend to nail my flag to any mast; I am only prepared to judge by my own information.

Dr. Maes.—Just one point I want to talk about, and that is the propriety of flushing the peritoneal

cavity in the face of conditions like these. I had the good fortune two years ago at the meeting of the American Medical Association in St. Louis, of hearing Dr. Bevan read his paper on the propriety of flushing the peritoneal cavity with large quantities of saline solution. The discussion was headed by Dr. Murphy himself, who, I believe, is decidedly against flushing. The one point they made as to the propriety of flushing the cavity was the possibility of spreading infection. That is to be taken into consideration, but not the great thing. We have to look to the bacteriologist to show the reason for not flushing. When we take b. coli communis and let it grow for about 48 hours, and at the end of that time it will cease to grow—will stop, it inhibits itself. If we take a culture of b. coli which has ceased to grow and add some saline solution it will start afresh, and we get more bacilli. It seems to be that the same thing applies to the peritoneal cavity, and gives us the reason for not flushing it. We dilute the poisons which stop the growth of the micro-organisms.

Dr. Barr.—Would you get the same result if you had plain water?

Dr. Maes.—Yes, or any bland fluid. You will dilute your inhibiting culture medium, and your bacilli will grow afresh, no matter what fluid is used. Take your culture medium, water or salt solution and your organisms will start with their new growth for another limited time and then stop. You can repeat this. You have only to keep diluting the poisons thrown out by the organism which inhibit its growth. This is to me the real reason for not flushing. We dilute whatever antibodies have been thrown out by the patient as well and start a fresh growth of bacilli, which may have been rendered quiescent, and thereby give your patient more toxins, with which he may not be able to cope.

Dr. Barr.—I think the point made by Dr. Maes is excellent and certainly worthy of every consideration. It occurs to me, might it not possibly be an objection to the use of salines by the rectum. It might lead to an increase in the extravasation of fluid into the peritoneum, and in that way would frequently increase the bacilli.

There have been reports lately pointing to the disadvantage from the use of saline by the rectum in cases of peritonitis, and it is possible that this Murphy method might be really bad for the peritoneum.

Dr. Maes.—May I answer?

Dr. Barr.—Yes.

Dr. Maes.—It was brought out by Dr. Murphy that we did not want to give saline solution by the rectum in sufficient quantity to cause exudation into the peritoneal cavity. His original idea in the administration of saline solution, was to reverse the lymphatic circulation in open or drained wounds, especially in appendictis. I heard that this was demonstrated in the clinic of Dr. Da Costa. By putting methylene in the saline solution, they recovered the blue saline solution on the dressings.

EXPLORATORY LAPAROTOMY.*

By CARROLL W. ALLEN, M.D.,
New Orleans, La.

In a subject of this kind it is not proposed to bring forward anything new, but we often benefit by reviewing facts already known. For this reason we keep our notes or consult the well-thumbed pages of some favorite textbook.

In the comparatively recent past, just prior to the advent of the Listerian period, and the beginning of modern abdominal surgery, such typical disease entities as we recognize today in appendicitis, gall stones, cholecystitis, renal calculi, ectopic gestation, gastric ulcer and carcinoma and numerous other intra-abdominal disturbances which are diagnosed today under typical conditions by clear-cut, positive symptoms, which permit almost mathematical precision in reaching a diagnostic conclusion, were prior to the present era confused in a maze of uncertainty and confusing sypmtoms which were only unraveled on the post-mortem table.

There are still a large number of intra-abdominal conditions, incipient, atypical or uncommon conditions which are just as confusing to even the most skilled and experienced diagnosticians and surgeons as were the distinctly typical types of the above-mentioned diseases to the earlier surgeons. It is probable that as our diagnostic knowledge increases we will be able to correctly interpret many at present vague, uncertain and confusing symptoms with the same exactness and precision which we now do in the more common conditions. As it is today, how often

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are we in error in a pre-operative opinion or diagnosis expressed regarding the origin and nature of an abdominal mass or tumor, and consequently of the prognosis?

How often today, in the state of our present knowledge and many laboratory aids, is the clinical diagnosis so completely upset by the autopsy report? On the other hand, what is the mortality from exploratory laparotomy? Practically nil. Under what conditions should exploratory laparotomy be undertaken? Whenever a reasonable doubt exists regarding a positive diagnosis, and any possibility may exist of the trouble being a beginning of malignant growth or other serious condition which early operation may cure.

In malignant disease of the abdominal organs, where the diagnosis is clear before operation, in nearly every case it is too late to effect a cure by operative means, and the most that can be done is some palliative procedure in a few of the cases.

How often in the operative notes of cases do we find the simple statement "inoperable carcinoma." Now, if we admit the truth of the statement that all malignant growths are curable if taken in time, how many of the above-mentioned class of cases could have been cured, if taken in time, after the onset of the first doubtful or suspicious symptoms? I admit that many cases of malignant disease have, through its insidious and silent progress, already reached inoperable proportions before any symptoms occur. These, however, are in the minority, and are at present a necessarily hopeless class. Many others have shown symptoms for months before operation, only to find by a delayed operation that it is too late. In these cases, in the event of any possible suspicions or even doubt regarding the true nature of the trouble, what a boon it would be to these patients to submit to the very slight risk of the exploration and find out that there was no malignant trouble. This relief, if nothing is found, would amply repay the slight risk necessary, and, if found, it may yet be in a curative stage.

Who can witness an advanced case of malignant disease, with its relentless and merciless progress and the utter hopelessness and misery of the unfortunate patient slowly being consumed by this terrible scourge, waiting patiently for merciful death to bring relief, without feeling what a satisfaction and pleasure it would have been, in a duty well performed, to have prevented this tragic sight by an early and timely operation?

Not long ago I was consulted by a young woman in fine health and with a magnificent physique. She had noticed for about two weeks a painless nodule about the size of a pecan in the lower portion of the right axilla. I kept her under observation for about one week, administering the usual therapeutic remedies, when, seeing no benefit, I advised an operation. The idea alarmed her, and she went elsewhere. Several months later, in visiting one of the wards in our charity hospital, I was spoken to by one of the patients—a poor, exhausted-looking woman, a shadow of my former patient, with a large carcinomatous mass invading the entire axilla and right side of the chest. She told her story, deploring her fate and lack of judgment, and begged me, in dealing with others, to insist upon the same course I had advised for her, hoping that some would listen and be saved what she had suffered and must yet suffer before her time would come. I have had many such experiences, some yielding to advice and accepting timely operations, with a fairly gratifying percentage of surgical cures.

During the past summer I have had several impressive experiences. A male patient was referred by my colleague, Dr. Gillespie. He had been suffering for some time with pain in the right side of the abdomen, and had lately been losing rapidly in weight. The right side of his abdomen from ileum to costal arch was tender, but beyond this there were

no other symptoms. I advised operation, which was accepted. The exploration revealed the ascending colon involved in a nodular and indurated mass extending up to the hepatic flexure. The condition looked malignant, but seemed removable. Accordingly, the entire right side of the abdomen was eviscerated, removing a portion of the ileum, ceacum, ascending and part of the transverse colon, with the mesentery attached to these parts, restoring the bowel continuity by a lateral anastomosis of the ileum to the remnant of the transverse colon. The case made a happy recovery.

The specimen was examined by the Touro Laboratory and reported to be inflammatory thickening, the result of a chronic appendicitis. The specimen looked so threatening of malignancy that it was practically cut to shreds in looking for a section that would show the disease, but none was found. The appendix, which formed part of the mass, was hypertrophied and ulcerated.

Mrs. C., age 29, had been suffering from stomach trouble for many months, and had been treated for digestive disturbances by several physicians. The early part of last August she had an acute attack of supposed peritonitis, with symptoms of intestinal obstruction. I saw her several weeks later and made a probable diagnosis of cancer, and advised laparotomy. Next day operation revealed a carcinoma which had probably started from the greater curvature of the stomach, and involved the colon and gastro-colic omentum, with extension to the posterior abdominal wall. The incision disturbed her very little, and she returned home in a few days. The same incision made months before would have disturbed her less and have given a fair chance of operative cure. She died in the last few weeks.

Illustrating the at present hopeless type is the following: A young lad of nineteen years recently entered our service at the Charity Hospital, presenting a slight mass in the right iliac region, and gave the following history: About two months before, while plowing, he had been struck in the lower part of the abdomen with the plow handle. Three weeks later he noticed a swelling, for which he sought medical advice, and shortly afterward came to the hospital.

Incision revealed an infiltrating mass, involving the ileum and sacrum, extending forward into the anterior abdominal wall, and posteriorly into the true pelvis. Clearly an inoperable condition.

In closing this paper I do not wish to be understood as advocating operation for every case of stomach ache or in the neurotic or neurasthentic patient with a long history of nervous disturbance, except on some clear or reasonable indication; but in the case of the individual of previous good health, or possibly with earlier history of gastric ulcer, who complains of persistent or repeated abdominal disturbance not readily accounted for, and when any suspicion can reasonably exist regarding a possible malignant process.

LIGATURE MATERIAL AND AFTER TREATMENT OF SURGICAL CASES*

By H. T. INGE, M.D.,
Mobile, Ala.

In selecting the subject, "Ligature Material and After-Treatment of Surgical Cases," it would appear that I am only to discuss the cases from a point of interest and personal observation, with brief reference to the accepted modern views. In many cases the ligature and suture material chosen has apparently interfered with normal convalescence. This was true with all operators with the early advent of abdominal operations and before the days of antiseptic surgery. Hence I feel that it is necessary to make a few pointed remarks in regard to selecting the best form of material to be used.

When it was deemed necessary to ligate an artery, no matter how small or insignificant, with a piece of silk sufficiently strong to carry an enormous weight, platted silk, however large or small, was thought favorable, and the piece of silk that was first known was pedicle silk, but it was too large to be threaded into the largest needles made. This, however, has long since been abandoned, and only a few use very small silk now in anastomotic work on the itnestines.

Some surgeons, however, are using Irish linen as suture material for its extreme strength and power of resistance. Pagenstecher thread is also popular as a buried suture in abdominal and pelvic work. The Irish linen material has been known to remain in patients and form a fistulous opening lasting for four or five years and then disintegrating. Kangaroo tendon was extensively used a few years ago, because it was considered strong and non-resistant, but the use of these large tendons has been about abandoned now. The selection of the smallest-sized catgut—that is, of sufficient strength to stand the test for a few days—is all that is necessary. In fact, the use of ligature material is rapidly going into disuse in the abdominal cavity. If the artery can be seized and thoroughly crushed one-eighth of an inch from its end, this is all that is necessary in the majority of cases. For instance, anyone familiar with railroad surgery has had innumerable cases where the upper and the lower limbs have been crushed and torn from the body, and yet there would not be enough hemorrhage to cause any annoyance or inconvenience to the patient. A clot is quickly formed in the torn end of the vessel, the process being hastened by injury to the intima or inner coat of the vessel. The normal coagulation time is from five to ten miuutes. Torsion or crushing of the smaller vessels is sufficient because the pressure therein is not of enough force to dislodge the thrombus; oversewing also prevents hemorrhage from minor vessels as well as it covers raw surfaces and prevents adhesions. As a matter of safety, larger vessels had best be tied with plain catgut, double sterilized.

In bone surgery silver wire and spun bronze are extensively used for purposes of apposition. Many use these in fracture work instead of Lane plates, Parkhill splints, and the like. It is my custom to employ strong silver wire in bad or ununited fractures of the large bones. This is easily sterilized and gives most excellent results.

In closing skin wounds my routine practice is the use of silk worm gut as interrupted sutures, the layer apposition accomplished by a moderate-sized plain catgut. This gives me much better wounds than did the catgut which I formerly used. The running suture of silk, the subcutaneous suture of silk worm gut or

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catgut are in great vogue, but my technique has given me so much satisfaction that I am loath to make a change. A small stitch abscess is more easily handled with the interrupted suture, and there is not so much danger of opening of the wound along its entire length.

The chromic gut is not nearly so extensively used as formerly. It was quite the go several years ago, but now we know that all that is necessary is to approximate the tissues accordingly and they will adjust themselves. Suture material will cut through any tissue that we may introduce it into within forty-eight hours so as to make the tension on it amount to nothing.

It is my practice to use the smallest-sized ligature material that I can use, not depending upon every house in the country that produces ligatures and thrusts them upon the profession as thoroughly sterilized gut. The prudent and cautious physician will prepare his own ligature material, thereby placing the responsibility entirely upon himself. If, however, the ligature tissue is not thoroughly sterilized, we may look for and expect trouble of most any kind. Our patients will run a slow septic fever which will last for a time, entirely depending upon the amount of infection acquired, and, in my opinion, the convalescent state of a patient depends largely upon the character and quantity of foreign substance in the form of ligature material used within the abdominal cavity.

It is my opinion that patients who have been operated upon do not receive from a great many surgeons the close attention that they are entitled to. Too frequently the patient is left in the hands of nurses, who may be selected, not for quality or good judgment, but for their availability, and it should be the positive duty of every physician to see the patient within one or two hours after the operation and within six or seven hours later. But if the operation has been of short duration, and the patient is not suffering extensively with ether narcotism, it is well that they should be left entirely alone. But if the case is one where there have been extreme lesions, they should be put to bed with warm bottles, with the use of slow saline enemas. If pus exists in the abdomen and drainage has been instituted, the patient should be put in the Fowler's position and kept in that position for from eighteen to forty-eight hours, and saline administered according to the drip method of Murphy. It is not my habit to use any heart stimulants, unless there is positive indication for same. If the skin be cold and clammy, and if the pulse is full and flabby, strychnia should be administered hypodermically, and the quantity to be used should be left to the judgment of the physician. As much as one-thirtieth of a grain may be given every two or three hours with impunity. If, in spite of this, there is no indication of the patient rallying, a subcutaneous injection of normal salt solution, or enema, or intravenous injection, should be resorted to at once. If there is to be any worse infection in the patient, it will be demonstrated invariably within the first fifteen or eighteen hours, but if there is no unfavorable symptom present at that time, we can with assurance expect our patients to recover.

Profound shock after operation demands urgent attention. Stimulation is obtained by using camphorated oil, strychnia as above mentioned, one of the preparations of digitalis, or even whiskey. All medication is, of course, hypodermic. Morphine and atrophine are of great aid in shocks. It is of advantage to elevate the foot of the bed, or even bandage the extremities, all to maintain the integrity of the circulation. Saline is given intravenously, subcutaneously or as an enema. In the latter way also a pint of hot, strong coffee works wonders in some cases.

Aggravated nausea is controlled by withdrawing all food or drink. Cerium oxalate, codeine, cocain hydrochloride, champagne, and diluted hydrocyanic acid may give good results. In very resistant cases gastric lavage

with cold water and rectal feeding may be necessary.

The habit of keeping the patient absolutely on his or her back for six or eight days after the operation is not necessary. The patient should be permitted to move from side to side, thereby preventing in the majority of cases all adhesions. Some surgeons have adopted the plan of having the patient sit up within sixty hours after an abdominal operation. To this measure I most positively object, for I do not believe that approximate union of surfaces can become sufficiently united to stand the strain upon them. There is absolutely nothing to be gained in permitting a patient to get out of bed before seven or eight days, and there are innumerable cases that have proved serious by doing this. An elderly person should be gotten up in a chair or given a back rest as soon as possible, in the judgment of the operator; this is to control a strong tendency to hypostatic congestion and pneumonia that we find in these persons. Should a post-operative pneumonia result, the patient is put on the routine treatment of the same disease from other cause.

Any secondary infection is determined by the temperature chart and signs of localized inflammation. Hence the temperature is carefully noted for a week subsequent to operation, and any infection is treated according to the recognized surgical methods of handling infection, regardless of cause.

In short, a post-operative routine can be summed up in one paragraph. Don't overtreat your patient; keep up the body temperature; be on the lookout for secondary infection; don't give morphia if it is avoidable. In case a hypnotic must be given, morphia is best; the others are but makeshifts. But the surgeon must remember that morphia is the most dangerous drug in the Pharmacopeia on account of its magic soothing properties that are understood by all the educated laity; there are few who are not quick to plead for the hypodermic. Its power, once felt, may lead to frequent calls on it in the future.

DISCUSSION.

Doctor Jelks.—With reference to suture material, I wish to express my approval of what the doctor has said as to sizes. I remember fifteen years ago I could not get a ligature or suture large enough; now I cannot get them small enough. The smallest size, I believe, is best; it depends on the form of surgery you are doing. The surgeon must select his own material. If in the face and the wound is rather superficial, say, about the mouth, I think the silk is very bad; in rectal cases, certainly the catgut is the worst you can use, and, strange as it may appear, silk and flax and linen seldom give any trouble in and about the rectum, and I have very seldom had any trouble from the use of these ligatures. The doctor referred in his paper to the after treatment of shock and the position of the patient.

If I want a heart tonic I would not prefer strychnia; sparteine may be conceded superior to any of the drugs we use now, but sparteine is put up in tablets of one-sixth, whereas I do not hesitate to give one-half grain hypodermically. Some reference was made to the Fowler position. It is not for shock. I would be afraid to use it for that, but I do use it for drainage, and I do use it to prevent any infectious material getting into the abdomen from the pelvis. Certainly, better care can be taken of the abdominal region by adopting the Fowler position.

Dr. Cohn, New Orleans.—As an interne of Touro, under Dr. Matas, about four years ago, I saw an echinococcus cyst of the liver. In this case the cyst wall had passed through the diaphragm, and had become attached to the pericardium. In taking it out, Dr. Matas first had his hand in the pericardium. This man recovered, and is alive today.

Dr. Inge.—This case I reported is doing well also.

PRACTICAL GYNECOLOGY.

A Comprehensive Text-Book for Students and Physicians. By E. E. Montgomery, M.D., LL.D., Professor of Gynecology, Jefferson Medical College, etc. Fourth Edition, Revised and Rearranged. With 589 illustrations, the greater number of which have been drawn and engraved specially for this work, for the most part from original sources. Philadelphia: P. Blakiston's Son & Co. Price, cloth, $6.00 net.

The reviewer has carefully inspected this book of 857 pages, and has reached the following conclusions: It is the most profusely illustrated book of the kind in existence, so far as he knows. Though a cursory glance might cause an impression that the book is chiefly of a surgical character, yet a more thorough examination shows that its author is not in any respect a therapeutic nihilist. For the young practitioner desirous of equipping himself with the technic and medication of modern gynecology this book may safely be recommended as thoroughly satisfactory, while the more experienced gynecologist might often find it very convenient for refreshing the memory on some particular feature of his art.

LOCAL ANAESTHESIA IN HERNIA OPERATIONS.*

By DR. WM. T. HENDERSON,
Mobile, Ala.

In describing the technic of hernia operations under local anaesthesia, it seems proper that a particular method of curing rupture which has been most useful in my hands should be explained, as well as the manner of using cocaine and adrenalin solutions to render the field of operation painless. The great number of ruptured persons in our midst, who are incapacitated for many occupations, and who are estimated to possess but 80 per cent efficiency, who suffer more or less every day of their lives, does not reflect favorably upon our profession, which boasts of the wonderful and difficult problems solved in the past few years, while right at the home of each of us is to be found at least 10 per cent of the people resorting to antiquated means to retain their abdominal contents.

In passing I pause to express my disapproval of any kind of a truss, as I would every kind of pessary which has been relegated to the past by the most progressive gynecologists, and still we advise the fitting of a truss on many patients, knowing that in time the hernia will enlarge, the tissues becoming weaker upon atrophy of the muscles in the region, due to the truss. We submit to the patient the "terrors" of a general anaesthetic and the "horrors" of the major operation to condone our conscience, while we suggest some mechanical appliance until the patient drifts from doctor to quack, and the last condition of that man is worse than the first, and why? Because the doctors do not appreciate the simple method of local anaesthesia so successfully practiced by Dr. J. A. Bodine, of New York, and the wonderful cures brought about by Dr. Alexander Hugh Ferguson, of Chicago, in his operation known as the typic or anatomic operation. It is to the method of the former in using cocaine solution in the radical operation for hernia, and the operation of Dr. Ferguson in curing rupture by restoring the tissues to their normal structure, that I wish to direct your attention.

The many difficult and complicated procedures described in the text-books have tended to bewilder the doctor rather than educate him, and so he suggests to the patient the application of a truss and loses the most opportune time to bring about a cure. The older the rupture the more difficult the cure.

If the surgeon would but remember that a perfect anatomical groin never is marred by rupture, and, in the repair of this defective anatomical region, all that is necessary is to restore the parts to their correct relation, there would be more cures and less sausage-like rolls in the groins of those who have been operated on by methods which have for their main object transplantation of the cord. The mortality of strangulated hernia has not been reduced in twenty years, partly because general anaesthesia is prolonged in a weakened patient, who vomits during the operation, only to inspire the vomitus, frequently causing pulmonary complications, and partly on account of the shock of the anaesthetic, and partly on account of the necessary haste, leaving too frequently not enough time for the operator to decide upon the necessity of a resection or to return the gut in its blackened condition within the abdomen, where it may and it may not regain its normal function. This is one operation where plenty of time is needed to decide upon most important matters, and we can get best results with local anaesthesia in these cases where an hour's time may be al-

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lowed for the gut to regain the proper color. There is no pain where no traction is made upon the mesentery; the gut is already out of the abdomen. When the profession learns how to cure every inguinal hernia without pain or deformity, the public will be ready to submit to a procedure which statistics prove is safer than wearing "Honest John" trusses.

In a private communication from Dr. Bodine, he makes the statement that he has operated upon more than 900 hernias without a death and without suppuration in any wound, and in none of these patients was there any complaint of pain during the operation.

H. Hilgenremer gives some statistics from Wolfler's Clinic of cases operated on from 1895 to 1910. An interesting feature is that the number of strangulated hernias remain about the same, though the total cases have increased greatly. During this period there were 1,460 free hernias and 778 strangulated hernias. The death rate among the strangulated cases was 19.7 per cent. If every one of these cases had been operated on by local anaesthesia as soon as the diagnosis was made, in all probability 148 lives would have been saved out of this series of cases alone. I submit these figures coming from a clinic where local anaesthesia is used exclusively in every case of inguinal hernia which comes for operation, and one from a clinic where ether is the anaesthetic most in use.

As John B. Murphy says in his year-book: "Wolfler's statistics emphasize the mortality of procrastination. They also emphasize the facts in favor of operating in all cases as soon as the diagnosis is made, not waiting for strangulation." While strangulation is the most serious clinical manifestation of hernia, its very occurrence often is the means of bringing about a radical cure, while the constant presence of a free hernia often deters a patient from making many efforts, and the harm done the patient in his battle for livelihood is incalculable. We have done much to lessen the spread of contagious disease. We should do more to increase the efficiency of the ruptured by advising operation in many cases.

If local anaesthesia were a means which few could use, I would not urge this question, but it is a method successful in the hands of any careful surgeon, who will become a better operator on account of the delicate dissections which these operations demand. The tearing of the structures with injury of the nerves so often done in operations under general anaesthesia is forbidden in these operations, which insures a greater percentage of cures than by any other means. The conservation of the nerve supply of a muscle is of as much importance as the preservation of the muscle itself. There is no means of retaining the abdominal contents more useful than healthful muscular tissues, and the best results in inguinal hernia operations follow early treatment before the truss has caused pressure atrophy—with careful dissection of the tissues without injury to the nerves. A frequent example of the effect of the severance of the nerve supply to the muscle is shown by right side inguinal hernia, which so often follows operations for appendicitis when the ilio-hypogastric or the ilio-inguinal nerves are carelessly cut in making the incision close to the anterior superior spine of the ilium. Spontaneous cure never takes place in any hernia without retraction of the sac, and we know how improbable this is, nor is cure of any kind assured until the sac is properly treated in every kind of abdominal hernia. A supposedly cured hernia from wearing a truss will recur if the patient lives long enough or until the consequent atrophy of the muscular tissue dependent upon advancing years begins to show itself. A hernia small enough to be retained by a truss is more dangerous to the patient than a large one, because the former is more liable to strangulation. A rupture too large to be retained by a truss should be cured because it gives greater efficiency to the individual, and consequently more comfort. Practically the only patients who are operated on

today are those who cannot wear a truss on account of the discomfort occasioned by those who suffer from strangulation. All patients of both sexes between the ages of two and sixty years who have inguinal hernia should be operated on if circumstances and general physical conditions permit of it. No young person during the school years is doing justice to his or her development who is constantly nursing a hernia. Its influence upon the otherwise healthful and vigorous young man will retard him mentally as well as physically. A sound mind is most frequently found in a sound body. There are conditions where an operation for the cure of rupture is contraindicated in those far advanced in years, and in those who are suffering from incurable diseases or hemophilia and in children under two years of age. With my limited number of cases and in consideration of Dr. Bodine's remarkable number of operations under local anaesthesia without a death and with the report of more than 2,500 operations of different operators by the Ferguson method without a recurrence, it seems to me that the time has arrived when the indiscriminate application of a truss should be decried. It is not practical to use local anaesthesia in children under ten years of age on account of the difficulty of holding their attention away from the field of operation. While the procedure may be absolutely painless, the fright consequent upon a surgical operation, with all the strangeness and paraphernalia accompanying the surgeon and his assistants, will frequently excite in the timid child conditions similar to hysteria. The confidence of the patient must be maintained throughout the operation. It is wrong to promise a patient that he will not be hurt, then proceed to inflict severe pain by cutting tissue which has not been thoroughly infiltrated with the solution. A solution consisting of one and one-half drachms of warm, sterile water, to which is added a grain tablet of cocaine hydrochlorate and a half drachm of adrenalin solution, prepared immediately before the operation, will be found best suited for the procedure. The addition of the adrenalin solution favors local anaemia partly brought about by the thorough infiltration of the tissues, and so helping to retain the cocaine in and around the line of incision. At the same time the less blood in the field the better, because frequent sponging will remove the cocaine. A two or three drachm graduated glass syringe supplied with a long needle will be necessary to thoroughly infiltrate the tissue. The syringe is drawn about ⅛ full of the anaesthetic solution and ⅞ full of warm sterile water, and the line of incision as illustrated in the drawing is thoroughly injected. It is rarely necessary to use more than ⅜ of a grain of cocaine to complete the average herniotomy. As soon as the incision has been made down to and through the fascia of the external oblique muscle, the ilio-inguinal nerve should be found following the course of the inguinal canal. It is injected with a fine hypodermic needle as far up as is practical, or in the upper angle of the wound. The sac can now be carefully dissected away from the cord with scissors and forceps without pain, opened, inspected and transfixed, and ligated after a few drops of the ⅛ of 1 per cent solution has been injected into its base. In the Ferguson operation all that is necessary now is to sew the internal oblique muscle to the shelving portion of Poupart's ligament without moving the cord. The point made by Ferguson, that the cause of inguinal hernia, which is most often seen in the male, is on account of the deficient attachment of the internal oblique muscle, is readily demonstrable in any ruptured person during the operation. In the female the attachment of this muscle may occupy fully two-thirds of the length of Poupart's ligament, while in the ruptured male not more than one inch of the ligament is occupied by the muscle, which may be seen above the internal ring, leaving this important anatomical structure entirely unprotected by muscular tissue. It is to be expected that the intestine will readily find

exit here to occupy a preformed sac, an embryological structure, or push a fold of peritoneum gradually down into the scrotum.

A frequent primary cause of hernia is the existence of a pre-formed sac. If every hernia were the result of weakened abdominal muscles there would be more recurrences following radical operations. The existence of a pre-formed sac in femoral hernia has been fully demonstrated by R. N. Murray, of Liverpool, England, and I see no reason why such a structure cannot be found as frequent in inguinal hernia. The occurrence of rupture in the newly born favors the presence of this embryological structure. All hernias of sudden appearance must necessarily occupy a preformed sac. If a hernia sac were formed by the gradual pressure of the gut from within, the neck of the sac would be larger than the fundus, while, in fact, quite the reverse is met with in most inguinal ruptures. In femoral hernia all that is necessary to effect a cure is to dissect out and ligate the sac, there being no muscular tissue in this locality to be placed over the ring. A convincing argument in favor of the pre-formed sac is the failure of the hernia to recur when the sac has been properly dealt with. If the first sac were formed by pressure from within, why not a second? All that is necessary to effect a cure in an inguinal hernia is to dissect out the sac, ligate and cover the unprotected internal ring with the internal oblique muscle by carefully sewing it down as far as possible to the shelving portion or border of Poupart's ligament.

DISCUSSION.

Dr. Crawford, Hattiesburg, Miss.—I would like to arise in defense of Dr. Bodine. I have had the pleasure of seeing and assisting him in some of his work. First, he is perfectly capable of doing work with a minimum of infection, and, second, he is especially suited to do work under local anaesthesia. His secret, I think, as is the secret, either consciously or unconsciously, of every one who attains to a marked degree of perfection in this line of work, is that he is strongly endowed with hypnotic ability. I have seen him operate on a doctor, removing one of his toes, with 1-350 grain of cocaine.

As the essayist suggests, local anaesthesia, in the hands of most of us, is an expedient to be resorted to under certain definite circumstances that make themselves apparent in the analysis of the individual case. We have opened the abdomen numbers of times under very dilute solutions of cocaine. On one occasion we removed a thirty-four pound tumor with one-third of a grain. During the past three weeks we have performed two double herniotomies and one for strangulated hernia under local anaesthesia. The last case was in the person of a man of the tender age of eighty-three. None of these patients experienced any discomfort.

I would like to say in this connection that it is our custom to administer a quarter grain of morphine, in some instances combined with hyoscine, as a preliminary to both local and general anaesthesias. If such a hypodermic is given an hour before time for operation, the patient has passed into an indifferent state by the time you are ready for the instillation, and if he is receptive at all, he is very amenable to suggestion.

It is a mistake to presume that every case is suited to local anaesthesia. It is a mistake to try to adapt this method to a highly sensitive organism whose capacity as a recipient of suggestion is practically nil. There is a doctor in this room on whom we operated for appendicitis last year with a fractional part of a grain of cocaine. He assured us that he experienced no discomfort.

Dr. Crook.—Do you believe any man could be operated upon for hernia without pus?

Dr. Crawford.—You ought not to have pus. Just here let me say that a moist wound does not necessarily mean infection. Every one who uses animal ligatures will recall an occasional experience with a serous discharge devoid of organisms and due either to chemical irritants used in preparation of the sutures or to over hardening of same.

Dr. Gessner.—I have not had 900 cases of hernia under local anaesthesia without pain or infection, but I have had quite a few, and I rather like the method, so I want to get up here and back up Dr. Henderson. I believe no one questions the fact that in strangulated hernia it is the method to use. The patient should not be allowed to vomit up the gastro-intestinal contents under general anaesthesia and drown himself. For that sort of case—strangulated hernia—a local anaesthetic is indispensible. I think it is good practice even where it is not necessary to use local anaesthesia, so as to familiarize ourselves with it and to acquire the necessary skill.

About the matter of waiting to see whether the coil is capable of surviving or not, there is a little trick I have read of to put the coil back in the abdominal cavity, provided, of course, it is not a leaking coil. If you put a coil of intestines carefully into the warm, moist surroundings to which it is accustomed, it will get its normal color back more quickly than if you keep it dry outside, and keep pulling on it, which, of course, cuts off the blood supply to some extent.

It is a point I have not had the opportunity of testing clinically, but it looks very good to me.

About the matter of the selection of cases, it is a plain thing to anyone who does work under local anaesthesia that you have to select your cases.

I have a few little tricks I use in doing local work. One thing referred to is the pain of the first prick of

the needle. Many people do not mind that first prick, but I do. I have had a hypo needle stuck into my finger a few times, and it is somewhat disagreeable. The means I use to prevent it is an ethyl chloride spray. It is not worth much as a local anaesthetic, but it takes away the pain of the first prick of the needle.

The technique we use in doing cocaine work is more elaborate than that Dr. Henderson spoke of. If I caught his remarks correctly, he spoke only of the ilio-inguinal nerve. I have generally found it running on the free border of the two deeper muscles. But if you will run up about an inch above that the ilio-hypogastric is seen. There is a third nerve which it is well to look for, and that is the genital branch of the genito-crural, running in an angle between Poupart's ligament and the muscles which make up the conjoined tendon. If you put a little one per cent cocaine in these nerves you get good anaesthesia except for one thing, and that is, when you go to pulling on the sac the patient usually complains of the stretching. It is not actual pain, but some discomfort which makes them grunt a little bit.

A common practice with us is to use a No. 1 Schleich solution, one-fifth of one per cent of cocaine, with salt and morphine, for infiltration, and one per cent for the nerve blocking. I find that to use a large amount of weak solution is rather unfortunate. It fills the tissues up so that you cannot recognize the layers, and it somewhat disfigures the anatomy.

In regard to the matter of recurrence, after the use of the Ferguson operation, certainly the Ferguson operation is a more convenient operation. It is so simple to drop the cord. I think the important thing to avoid recurrence is to be sure to go far enough out in suturing the internal oblique and transversalis muscles to Poupart's ligament.

Dr. Macs, of New Orleans.—I merely want to cover a few points, about the use of local anaesthesia in hernia. It seems to me that giving an anaesthetic with the open method of ethyl chloride and ether or the gas ether sequence, there is a special class of cases only, in which local anaesthesia is indicated, unless it be for practice, as suggested in a former discussion. Those cases can be summed up into organic diseases, diseases, preventing the use of a general anaesthetic, very young or very old patients, very nervous patients, strangulated hernia, and doctors—don't forget the doctors—who always insist on having local anaesthesia.

Now, as to recurrence; it was not quite the title of the paper, but has been touched on very considerably by the essayist who spoke on the preformed sac in hernia.

No matter what operation we do, whether we do the Ferguson or whether it be the Bassini, we have to be particularly cautious about high ligation of the sac. I have found that in sacs that are high up in the canal, that are hard to ligate, when we put our ligature on it by simply displacing the remaining stump of peritoneum, and putting it in a new location by carrying the long ends of the ligature through the conjointed tendon, we thereby do away with the tendency already existing for the formation of hernia by displacing the infundibuliform process, which we cannot completely obliterate in many cases of redundancy of the peritoneum; we can displace it so as to put a smooth peritoneum where there was a point of least resistance, and thus do away with another preformed sac.

Another thing is that we always employ the overlapping method of Andrews, which we find gives better results, overlapping the layers of the external oblique, which is always possible when you have made your incision far enough above Poupart's ligament.

SURGERY IN EPILEPSY.*

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In the midst of the great successes of surgical accomplishments during the last thirty years there are certain fields of work which have shown but little improvement, and, unfortunately, there seems to have developed among surgeons generally a hopeless resignation—such a resignation of self-content as has been characteristic of every stagnant and inactive period of history—that nothing further can be learned about them. Among these neglected subjects may be mentioned surgery of the osseous system and that of the central nervous system, and the latter, the oldest and most widely known disease, is perhaps the most neglected—namely, epilepsy.

It is admitted that there are certain types of epilepsy not amenable so far to surgical or other treatment, and that of the types which are with an encouraging degree of frequency relieved, the majority remain uncured, a large

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percentage are only improved, and a small number cured permanently—that is, beyond a satisfactory number of years. A careful study of the literature, however, will convince the most skeptical that much good has been accomplished by surgery in both preventing and relieving epilepsy, and that even in the theoretically most hopeless cases an occasional miraculous cure has been accomplished. Do we not operate on cancer cases so well advanced as to offer less than ten and sometimes less even than five per cent of cures, and congratulate ourselves or the profession on such results and receive therefrom a stimulus to earlier and more radical performances? Do we not trespass, then, upon the rights of the people whom we serve by refusing to give them so small a percentage of relief from a scourge worse, if possible, than cancer?

It is the purpose of this paper to determine what forms of epilepsy are amenable to surgical treatment, what the nature of that treatment should be, what part the surgical work must be expected to contribute toward a cure, what additional therapeutic measures must be employed, and what final results may be hoped for. A study of this kind is rendered necessary occasionally, for the human side of the profession is likely to lapse into the vulgar forms of thinking and conclude that epilepsy is fits, and fits are incurable (since the disappearance of the man who was "hell on fits").

Accepting the following as a comprehensive classification of epilepsy—namely, Jacksonian epilepsy, petit mal, grand mal, psychic epilepsy—and adding to this list epileptoid or epileptiform convulsions from various causes, which, because of our more definite knowledge of their etiology, are not accepted as epilepsy, we may select certain of them which demand no surgical interference with almost uniform regularity and others which demand it quite frequently—probably much more often than they receive it.

We may dismiss, therefore, petit mal and psychic epilepsy, as such, entirely from the legitimate field of consideration in a purely surgical discussion. They are in no way benefited by operative measures. When, however, they appear as one type of seizure in an individual suffering from a mixed form of the disease, they should not be accepted as contraindications to an otherwise justifiable procedure.

The types remaining of true epilepsy are Jacksonian epilepsy and grand mal, epileptoid convulsions and those epileptic attacks, whatever their nature, due or probably due to irritative foci extraneous to the brain—the peripheral form. Before advising operation in any of these cases it is absolutely necessary to locate the point of attack in every instance, which may be done by a proper study of the aura, if present, the parts in which the attack uniformly begins (a very misleading guide in general convulsions), and an accurate knowledge of cerebral topography. The only additional plan consists in exploratory trephining.

I think it a fairly well settled point to operate or otherwise treat peripheral lesions which are or might be the determining cause of epileptiform conditions. Such lesions are especially urethral stricture, adherent prepuce, cicatrices, particularly those which catch nerves within their grasp, and occasionally other conditions, such as lesions of the pelvic generative organs of women and ocular defects. It is often difficult to decide just what influence such conditions have in a given case of epilepsy, unless an aura is present and manifests itself first in connection with the lesion, or unless irritation of the structure in question is capable of producing a seizure. In other words, a so-called idiopathic or essential epileptic may have a stricture, an adherent prepuce, astigmatism or diseased uterus, tubes and ovaries, and yet the origin and continuance of the spasms be entirely independent of these affections. In other words, the treatment of epilepsy by removal of peripheral, mechanical or pathological defects is essentially

largely empirical. One is cured by dilating the cervix and a dozen fail to receive the slightest benefit, beyond that, occasionally seen and usually temporary, arising from any operative procedure, or its equivalent in the nature of accident or injury. In all cases the heredity of the patient should be established as thoroughly as possible—often a difficult task on account of ignorance or concealment—and the more definite the history in his antecedents of an unstable nervous system, whether it is primary or secondary to alcoholism and tuberculosis, whether it has assumed in them the form of epilepsy or other nervous diseases, the greater the improbability of cure being wrought. I would not discourage such treatment, however, although the chances of cure are ever so slight; if there is a chance at all for cure, it should be given in every case of the kind; every defect should be corrected, not with the promise of cure, but with the hope of benefit, and always with a definite understanding, either with some relative or with the patient, of the exact status of our ability to offer relief in such cases.

One is loath to discuss the remaining two types capable of receiving benefit from surgical interference. The literature is so immense, so inexhaustible, so contradictory, and conclusions are drawn from such diverse procedures, and reports are made at such uneven intervals after operation, that one feels scarcely justifiable in asserting a great deal with positiveness, and yet it is precisely the positive facts that I have sought. All reports in recent years are gloomy—yes, extremely dark. We can learn that hundreds and thousands of times the operations have been done, and we count the results in cures in small units, and the improved occasionally in tens, being forced even then to question the permanency of the cures and improvements as given; for if a three-year limit is required to measure the cures of cancer, five years should elapse before the epileptic is reported cured; and many—may I not say most?—of the cases are reported within a few months after operation—Von Bergmann says often before the wound has healed—and extremely few are observed or heard from after even the expiration of three years' time.

A few facts will serve as a point of departure:

1. Certain cases of true epilepsy are curable by operation. The percentage is small—2 to 8 per cent.

2. Certain other cases may be benefited by surgery in reduction either of the number or severity of the attacks—possibly twice the number susceptible to cure.

3. The majority are not benefited at all, and a very small percentage are made distinctly worse.

4. The greater the ancestral taint and the longer the time since the onset of the disease, the less the chance of cure.

5. Epilepsy is not essentially and wholly a surgical condition. Even when surgery is done it should be understood by all concerned that the treatment is only begun, and the most painstaking regulation of the patient's life must be ordered and supervised by competent attendants for a long period of years afterwards.

6. The correction of all traumatic defects at the time of their occurrence, if they could with reasonable assurance be suspected of initiating epilepsy, would prevent many cases of epilepsy.

Failure to recognize the truthfulness of the first three facts enumerated in the list just given has cast a very gloomy aspect over the whole group of epileptic cases. For, so far as surgery has been able to demonstrate, its field of usefulness is limited, of necessity, largely to those cases which are initiated continually by a certain definite lesion or at a definite cerebral area. If the conditions are such as to show neither of these points, then there is no point manifestly for a definite attack and no reason for operating at one point in preference to another, unless there are defi-

nite symptoms and signs independent of epilepsy which indicate an increased intracranial pressure or the presence of tumor or granulomata, and call for treatment, not only on account of other symptoms, but because of epileptoid attacks if such be present.

Kocher gives the percentage of cures in general at 2 to 4 per cent. When the operation removes the exciting cause, such as pressure, adhesions and abscesses, the cures run to 68 per cent. Incision of dura and removal of fragments of bone gives cures in more than 85 per cent of the cases. Removal of cysts, gives 4.78 per cent cures, probably owing to the fact that cysts are so often the pathological termination of blood clots, and represent an extensive destruction of brain substance. In the cases referred to in Kocher's paper decompression without opening the dura gave 14.2 per cent cures, but when the dura was opened 54.7 per cent. The records are the most flattering I have seen, and I am sure no such percentage could be obtained except in early selected cases and in early reports subsequent to operation.

Sachs and Gerster cured three cases of nineteen operated on; all of the nineteen were traumatic cases. Five were improved, eight were not benefited, and three died. Spratling reports a series of cases operated on at an average of five and one-half years from the first attack, and, with one exception, the minimum interval between operation and report was eleven months; in most cases it was a number of years. Twenty of the cases were definitely or presumably traumatic; the remainder were idiopathic. In only one case did cessation of the fits occur, and that occurred only at the end of five years, and after other surgical procedure (abdominal section) had been done. The patient was free from fits for seventeen years, when they recurred. So this was, in the first instance, probably not a cure, and, in the second, if it was, it could not be logically attributed to the trephine operation. Nine cases were benefited and three were made worse.

Jonnesco reported the results of forty-five cases of epilepsy treated by cervical sympathectomy, of whom nineteen had been operated on long enough to permit conclusions. Of these nineteen cases, five had been free from attacks for two years, three from fifteen to eighteen months, and one for six months. Six cases were much improved; two were unimproved. There were no deaths. Of course, it will be inferred from Jonnesco's report that cure means freedom from fits; the report does not give us information relative to other symptoms. Improvement was noted in three patients operated on by Roswell Park at the Craig Colony, but the period since operation was too short to justify conclusions. Carl Beck's three cases of long-standing epilepsy were all improved, but they later returned to their former condition, both in frequency and severity of attacks. In the more recent literature very little discussion of sympathectomy is found.

Santee has said that "so far as the brain is concerned, education consists, first, in the development of the functional centers of the brain, and, second, in the establishment of lines of rapid communication between them." When this education has once developed—for rapid lines of communication are created by medullation consequent upon mental effort—it is not lost again—at any rate, completely. So in the phases of epilepsy presented to the surgeon he must not only satisfy himself that the case is definitely one which might offer some hope of cure or improvement from a mechanical or anatomical standpoint; he must at the same time determine what the heredity of his patient is and the duration of the epilepsy. The more marked the former is with favorable antecedents, and the longer the latter, the less the probability of surgical benefit. These factors may not be sufficiently marked to deter the surgeon from a procedure clearly

indicated by a close study of the signs and symptoms present, but they must alter his prognosis. It seems to be another case of the brain in some way becoming educated to a pathological process, so that, even when the original stimulus has been removed, a structural basis for the ordering of perverse stimuli has been developed in the substance of the cerebrum and cannot be eradicated. From this standpoint, as well as from the indications of surgical statistics, as poor and unharmonious as they are, one must conclude that, if surgery is to benefit the epileptic much, it must do so in the majority of cases soon after the establishment of the seizures. In every case where such a seizure is observed the question should be settled at the earliest possible moment, by surgeon and neurologist in conjunction, as to whether the case has a definite localized focus, or if there is a history of an injury that might be responsible; as to whether the case might be benefited by surgery, and, if so, surgical treatment instituted as soon thereafter as may be arranged. Delay, the employment of various drugs and the discouragement repeated attacks produce in the patient's mind do not benefit the patient or the lesion. If it has a mechanical, localized foundation, it is primarily surgical. I grant that, if no such factors are present, surgery remains to this day only a discouraging experiment and is not indicated. Let us go a step further. In all traumatic cases which have proved their power to produce epilepsy after varying periods of time, the danger of immediate correction of abnormity is much less than the probability of epilepsy, and no case should be allowed to go without the offer of such service; and where the patient or parent refuses in patent cases, it would be better if compulsory correction could be enacted.

I saw a case of this kind a few months ago in which a young child fell from a chair and produced a marked indentation of the skull. No symptoms followed or will follow until the fontanelles close and the cranium becomes an inelastic cavity. Then it would, indeed, be surprising to find a failure of Jacksonian epilepsy unless self-correction has occurred. It is a well-known fact that fewer cases of epilepsy follow the larger injuries to the skull which require trephining and removal of even large areas of bone than are seen after the smaller lesions which are unrecognized at the time, or, if recognized, do not impress the laity as being of sufficient consequence to justify the expense and risk of operation.

It should be impressed upon the patient and his relatives that when he has undergone an operation for epilepsy the operation is only a necessary step in a long course of supervision. It should be understood that surgery may put him in line for a cure, but that surgery alone often fails where it should not, and fails because of the too great solicitude of an anxious mother, a foolhardy persistence of the patient in forbidden paths, or the want of a distinct and intelligent guide to direct the whole after-course. This plan should be followed out just as fully in the cases that have had only a few seizures as in the older cases, and it can in most cases not be done so long as the patient returns from the operating room to his old associates and environment.

To discuss the various operative procedures employed with some degree of success by different operators would lead me too far afield. It is sufficient to state at this juncture that no one plan for relief can be accepted as a standard, and variety will continue doubtless for some time to characterize the efforts of workers in brain surgery. There is no question as to the chief features of the procedure in those cases which show distinct lesions on approach to the brain—namely, their removal or correction as far as possible. I think there can be little question, too, about the correctness of the plan for excision of the brain centers of those muscles or muscle groups which habitually are affected at the beginning of the seizures, although it is not

directed toward the foundation of the trouble in the sensory centers through whose perverted activity the motor manifestations are stimulated into activity.

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DISCUSSION.

Dr. W. T. Black, Memphis, Tenn.—I have listened with a great deal of interest to the treat that Dr. Bryan gave us. It is my belief that all such cases should be opened up and thus run less chances.

I remember a case about a year ago where the patient was hit with an axe. He had convulsions every week. I trephined him and he steadily improved. There is no doubt the dura should be opened with a view of relieving the pressure.

Another case was a young lady, about a year ago, who had epilepsy about once a month, and it came on about the menstrual period. She had to go to bed every month, and on examination I found a small, elongated cervix. I simply split the lateral walls (Pozzi's operation), thus delieving the constriction. So far she has not had a return of the epilepsy. Some cases we have in the very young. At the birth, from the use of forceps, sometimes we have clots, which later become cystic and then enlarge, producing pressure symptoms, which can be relieved by removing, or relieved to a certain extent by a trephine. The operation in all such cases is justifiable.

Whenever we are in doubt about the skull or brain being injured in traumatisms about the head, it is our duty to cut down to the skull and see, whether we have present pressure symptoms or not.

One case I would like to mention: About four years ago there was a young man whom I was called upon to attend, with the following history. About six weeks prior to my present visit, he was thrown from a buggy producing a large scalp wound. I enlarged the wound and found no appearance at that time of injury to the skull or brain. He had no pressure symptoms at all. He recovered from that accident perfectly. One night about six weeks later I saw him up town and he was perfectly well, and was on his way to a picnic. He returned home all right about twelve o'clock, went to the back of the house, talked to his mother, and was perfectly normal. About one o'clock he woke his mother by screaming, with a pain in his head.

I was called the next morning and found him paralyzed on the left side, and in coma. There could not be obtained a history of an injury the preceding night and there was no evidence externally of an injury to his head. A friend called on the second morning and told of a fight he had the night before pressure symptoms developed. The thing that makes this case one of interest is the fact that he had received a trauma to his head six weeks preceding his pressure symptoms. I was unable to get a history of injury just preceding symptoms, and thought at first it was one of those cases with quite a period of time elapsing from injury to symptoms of pressure—the interval being six weeks in this case (which could have been explained by a small, bleeding vessel which slowly formed a clot large enough to produce pressure symptoms). Another strange thing was the fact that he did receive, as I learned on the second morning, a lick on his head, and had no evidence in the way of discoloration, swelling, etc., to indicate a blow.

The case upon trephining proved to be one with a ruptured meningeal artery, without external evidence of injury, or a fracture of the skull.

Dr. Crook, Jackson, Tenn.—I have been much interested in the paper just read and more particularly, perhaps, because I read a paper myself on the subject before the Birmingham meeting of this association. I had a case where the patient had had three convulsions before that time, and since then there have been no convulsions, or, rather, the total convulsions from that time were only two or three, while, as a matter of fact, previous to the operation he had one convulsion a week, and his people told me he had them more frequently all the time before the operation. In this case the man had received a lick on the right eye from a piece of coal, and I removed a large piece of the bone and found the brain was considerably irritated.

I believe one thing should be emphasized, and that is the opening of the dura every time. If the dura appears normal, there may yet be something below it, and I think the dura should be opened and the brain thoroughly examined.

Where there is no history pointing to any skull trouble, I believe a large number of the cases can be properly traced to find precisely where the trouble is I have relieved several cases in children by circumcision. I remember one case of a little girl and I also remember one case of a young lady, who was assaulted by a negro. He did not break the skull at all, but on close examination I found that a nerve was adherent to the skull. Operation to free the nerve relieved the patient. I believe we should not tell the patient we are doubtful about the result of an operation, but by means of therapeutic suggestion we should influence him to have confidence that he will be cured after the operation. If we can reach the patient's will power by a suggestion that we can cure him, it is all right. The fact remains that in some way these patients get well.

Dr. M. M. Cullom, Nashville, Tenn.—In discussing the paper of Dr. Bryan, I have very little to add to the question on this subject. I was very much impressed with the suggestion of Dr. Black in regard to the cases of trephining, caused from the use of forceps, because I had just operated on a case of that kind in which the forceps had been used eight years previous, and this child had commenced to have epilepsy, and about the second year there was an increase in severity until at last there was hardly a day there was not a distinct paroxysm.

There is no question at all these cases of epilepsy should receive aggressive treatment. They ought to be taken in hand instanter, and while it is difficult to convince the people of the pateint of its necessity it is one that should never be allowed to be refused. When I have a case of this kind, I put it to the parents of the child or the parties interested that the operation is to be more or less experimental, and it may be that the case may go on improving, but that it requires a long time. Again, on the other hand, it may be just the other way, not direct

from the table, but the question of the severity of the convulsions may increase. The history of these operations is it seems to decrease the trouble.

I had a case once in which my best friend had been interested. A girl seven years of age, who had received a fall from the second story of a building down upon the lower step and had made a jointure from the frontal bone. We know that children are not good subjects for trephining operations. So far as the operation is concerned, as practiced by the Wagner method or otherwise, it is not particularly dangerous, but they would not consent to the operation until the child had constant cases of epilepsy. At last we took the initiative, after a long time; we at last took the case and advanced as cautiously as we could, but despite what we did that case grew so much worse that I suggested another operation, and before that one was made the child died; and it was a blessing. It was a blessing that that child died, for another operation would but have added insult to injury, and in such a case it does seem even with the greatest amount of caution they will go to the bad.

And I want to state again, you can always afford to explain the situation to the parents as to what might occur in taking this risk, because as a matter of fact many of these cases are better dead than alive.

Dr. H. G. Payne, Greenville, Miss.—A number of years ago I had a brother—Dr. W. W. Payne, of Meridian, Miss.—who, in crossing the railroad tracks at night in the yards of the M. & O. R. R. was struck by a kicked car, dragged a considerable distance and left in an unconscious state. The assistant railroad surgeon of Meridian and one of the best surgeons in Mississippi in consultation with Dr. Turner, was with him during the remainder of the night, the accident having happened at 10 p.m. He regained consciousness during the next forenoon. There was a slight depression when I saw him at 2 p.m., and I insisted, as did the other doctors, upon an operation, which he refused. He insisted that if he did not improve and there remained a slight hemiplegia, which was evident at the time, that he would later consent to an operation. In that case the paralysis was never removed, the condition existed for years. He went to New York and consulted Dr. Sacke and Dr. Peterson. I had a letter from Dr. Peterson attempting to describe the condition, which was a very unusual one.

A suit was instituted against the railroad company for this injury. Upon the advice of his lawyer and on account of the sued company he was taken to Mobile and subjected to all kinds of torture from electricity. Perhaps some of the gentlemen from Mobile remember the time he was there. He was injured in 1904 and died in 1909—four and one-half years after the injury. I am satisfied from the condition I saw him in that an operation would have made him a well man, much less four and one-half years of mental anxiety and a hopeless cripple.

We should not, in my opinion, allow any patient, whether head of a family or a child be neglected or abstain from operative interference when an operation is clearly indicated.

Dr. Maes, of New Orleans.—We have heard the radical side of this matter. Of course, in cases where we have demonstrable depression, I think it is the surgeon's duty to attack them at once, and forestall trouble; but we do see cases, with a history of some head injury, or possibly some cases of fracture by contre-coup like a sailor falling on the buttocks in the hold of a ship.

We have overlooked, it seems to me, the possibility of diagnosis by spinal puncture, which, in my mind, should be done in all obscure head injuries. I have in mind two instances where patients were relieved by lumbar puncture without trephining. I merely make the point that where we are unable to recognize some of these obscure intra-cranial injuries the puncture appeals to me as a valuable diagnostic aid.

Dr. Carter, of Memphis.—I want to say that in the City Hospital of Memphis I saw a case in a negro man of this kind, who had been treated for tonsilitis for some five or six days. On entering the hospital there were no symptoms to speak of, save a purulent discharge from the left ear; but the next day he began to feel numb on right side, and following day had no use of the right arm. He was seen by the surgeon and throat man. Abscess of the brain was diagnosed. Patient was operated upon next day, and in two weeks left the hospital.

Another case was somewhat similar. The patient went to work at 7 p.m. and was found unconscious the following morning. No one knew anything about his previous history. On examination, it was found there was a small scar on right side of head, with some indentation. Trephine was done over scar, where we found a cyst containing about one ounce of fluid. The patient made a beautiful recovery.

REMARKABLY SIMPLE TREATMENT OF SCARLET FEVER AND MEASLES.

In the *British Medical Journal*, date of September 2, 1911, the following remarkably simple treatment is described by Milne, who states that in 800 cases thus treated not one developed any of the usual complications, such as disordered glands, kidneys, etc. In four weeks patients are as well as they were in eight by the old system:

As early as possible in the disease, and without waiting for definite confirmation of the diagnosis in doubtful cases of scarlet fever or measles, the tonsils and the pharynx, as far up and down as possible, are swabbed with 10 per cent. carbolic oil every two hours for twenty-four hours, or for longer if the swabbing cannot be carried out regularly. Rarely is it necessary to continue the swabbing for longer than this. The swab should be of cotton-wool, firm, the size of the distal phalanx of the patient's thumb, held in a forceps, or fixed to a piece of wood by a thread. A fresh swab should be used on each occasion. The carbolic oil has the great advantage of relieving pain and enabling the patient to swallow more easily. In addition, the patient is gently rubbed all over with pure eucalyptus oil, from the crown of the head to the soles of the feet. This is done as soon as the patient is suspected of scarlet fever or measles, or as soon as he is found to be suffering from either of the diseases. This inunction with oil of eucalyptus is repeated morning and evening for four days, and once a day for the six days following.

THE SURGICAL TREATMENT OF CONGENITAL HYPERTROPHIC PYLORIC STENOSIS WITH REPORT OF CASE.*

By G. E. GAVIN, M.D.,
Mobile, Ala.

I take it for granted, in presenting this paper, that the entire profession, both surgical and medical, is agreed that there is at times a condition of spasmodic stenosis in the adult subject that simulates very closely an organic or mechanical obstruction; yet under medical and dietetic treatment a perfect cure may soon be accomplishede, while, on the other hand, we do find real organic lesions existing in the pylorus that can never be cured except by surgical means. In the condition of congenital pyloric stenosis there may exist two distinct conditions as in adult life, but most likely in no wise dependent upon each other as is the case with the adult. One condition being of simple spasmodic stenosis, the other of real hyperplastic stenosis, hence the latter a purely surgical condition.

In order to present the surgical side of this subject we are compelled to refer frequently to the medical side, hence I ask your indulgence for a short time only in order to reproduce some of the facts and theories concerning the cause, symptoms and treatment of this most interesting condition, probably found more frequently than one would think in the new-born. This is a condition with which any physician at some time or other is liable to meet and which he should be able to diagnose, being acquainted with the history of the case and the symptom-complex of the disease.

Many theories and conjectures regarding the pathogenesis of this condition have been adduced, but the real pathology and etiology of the trouble are yet indefinite.

It will be interesting to note and briefly comment upon the three following theories, viz.:

That the spasm of normally developed muscle is alone responsible for the apparent thickening of the pyloric musculature and for the pyloric obstruction; that there is no real organic stenosis of the pylorus or hypertrophy of its musculature. This theory was advanced by Pfoundler and has many advocates among pediatrists, who are misled into believing all cases of hypertrophic pyloric stenosis to be merely cases of pyloric spasm and advise against any surgical measures. Post-mortem findings, however, show cases of true pyloric hypertrophy which could have been relieved by proper operative treatment only, thus rendering this theory untenable and, I might say, unfortunate on account of its misleading influence, causing many conscientious physicians to postpone calling in a surgeon until the vital forces of the infant are too nearly consumed for a successful recovery after such a grave operative procedure as gastroenterostomy or pyloroplasty.

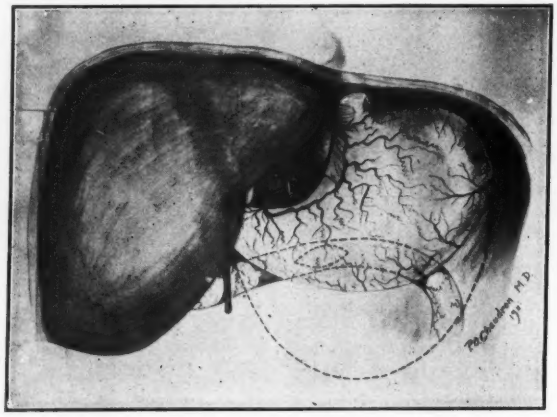
The second theory as advocated by Thompson is that there is a great muscular hypertrophy of the pylorus which is produced by antecedent overwork and that this functional abnormality, or spasm, which has occurred before or after birth is due to a defective development of the nervous apparatus or to a derangement of the duodenal secretions. As against this theory it would seem impossible that the amount of spasm or over-action which is necessary to counteract the stimuli from the duodenum, in response to which the pylorus dilates and the stomach contents are emptied, would be sufficient to create the great muscular hypertrophy which characterizes the condition. Furthermore, if the hypertrophy were due to spasm of the pyloric muscle, it would disappear after gastroenterostomy, which autopsy findings have disproven.

*Read before the Southern Surgical and Gynecological Association, Washington, D. C., Dec. 17, 1911.

The third theory to be mentioned, and the one which seems the most plausible, is that there is a primary organic stenosis and muscular hypertrophy and that this is not due to antecedent muscular over-action, but is purely a faulty embryologic development, probably caused by an abnormally high position of the pyloric end of the stomach, resulting in angulation and consequent twisting of the longitudinal fibers, causing a reversion in their growth and development. An excessive connective tissue hyperlasia is thus produced, which accounts for the partial or complete stenosis of the pylorus.

Defective organic development is as likely to occur in the pylorus as elsewhere, and a primary hypertrophy at this point will excite like clinical phenomena to a functional abnormality or spasm of the pylorus. The symptoms of this condition are constant and are clearly suggestive of an obstruction to the exit of the food from the stomach to the bowels. Vomiting, which characterizes the trouble through its entire course, is oftentimes, in the beginning, only an exaggerated regurgitation; later, however, as the reflex element becomes more accentuated, the vomiting is sudden, forcible and projectile. It may occur immediately after a feeding, or after several feedings, depending upon the amount of reflex spasm present. There is constipation, with persistent minimal bulk of stool; if the stenosis is complete, there is absence of milk in the fecal discharge. There is progressive wasting, marked visible gastric peristalsis and more or less dilatation of the stomach, depending on the duration of the condition. A pyloric tumor is usually palpable; however, not finding the tumor would not signify its absence, as it might be situated under an enlarged liver and not be felt, even with thorough relaxation of the abdominal walls under anæsthesia.

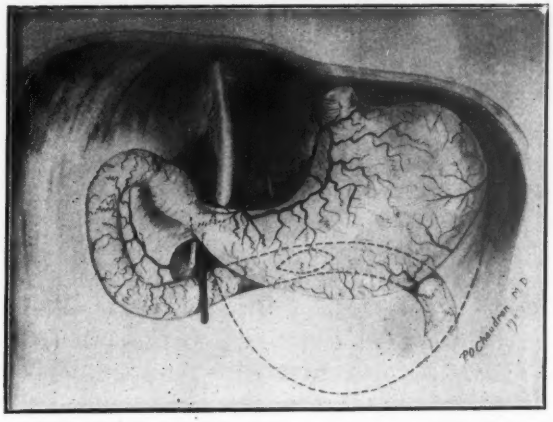
The condition has been mistaken for chronic gastric indigestion or marasmus, but in the present light of its definite symptomatology, such a mistake is not probable. A differential diagnosis between hypertrophy of pylorus and spasm of the pylorus is sometimes very difficult, as the same symptoms may be present in each, differing possibly in degree only; especially is this the case when there is only a partial stenosis. Each condition is accompanied by projectile vomiting, constipation, wasting, visible gastric peristalsis and, probably, pyloric tumor. In hypertrophy, however, the constipation is more pronounced, there is absence of milk residue in the stools, the vomit-



Showing liver overlapping the pyloric tumor. Dotted line shows lower bower of stomach at operation.

ing is more persistent, and the tumor is long and hard and does not vary in size from pressure. If no tumor is felt, the diagnosis is in favor of spasm; if it is a breast-fed baby with the above symptoms present, pyloric hypertrophy is the more probable. Dilatation of the stomach is in favor of hypertrophy. If the condition improves under medical and dietetic treatment, spasm is indicated. The treatment is surgical. No temporizing measures should be advised or approved when once the diagnosis of pyloric hypertrophic stenosis is made. The earlier the operation is done, the less danger there is to life from shock or from want of recuperative force.

The case reported was referred to Dr. McCall, of Mobile, on Sept. 28, 1911. He diagnosed the condition as hypertrophic pyloric stenosis and advised immediate surgical intervention. I was called in consultation and concurred in the diagnosis and performed the operation on the same date. The following is the history of the case:



Showing tumor of pylorus with liver elevated.

Baby Rhodes, male, white, aged seven weeks, second child; the other child is living and well. Family history was negative. Mother was not sick during pregnancy. It was born at full term, labor was normal; weight nine pounds. This was the only illness it had ever had. It began spitting up its food when two days old, which condition became more marked until it amounted to distinct vomiting, sometimes after one feeding and sometimes after several feedings. Breast-feeding was given three times on the second day and every two hours after that time; barley water, two ounces, was occasionally given for a period of eleven days in lieu of the breast-feeding with no abatement of the vomiting. Feeding by mouth was suspended during the time and proctoclysis was given every six hours for two days. A return to nourishment by mouth created a renewal of the vomiting, which was projectile in character, but was not sour. Barley water, which had been given every three hours during the eighteen hours previous to the diagnosis, had been retained. The child was much emaciated, features pinched and skin of a bronze hue, temperature sub-normal and pulse 140, weight 6 pounds 5 ounces. The liver was two inches below the costal border in the mammary line. The stomach was one inch below the navel. Percussing the left hypochondriun would start a peristalic wave from left to right as large as a walnut; usually two waves were apparent at the same time. No tumor was palpable. No anæsthetic was given on examination for the tumor, as an immediate operation was deemed imperative, and a second anæsthesia in so short

a time would have been too hazardous. The bowels were constipated, for which a daily enema was given, and which returned dark, bile-stained and containing shreds of mucus with an absence of milk residue. The operation consisted in a median incision from one inch below the ensiform cartilage to one inch above the umbilicus. After the abdomen was freely opened the stomach presented a very much dilated condition, the liver overlapping about one-third of the pyloric end of the stomach, thereby showing why no tumor was palpable before operation.

The liver was lifted up and to the right, the stomach drawn up and to the left, exposing to view the tumor, which was very firm and of a lighter color than normal tissue; it was the size of a large pecan and felt as though a foreign body of an olive shape had been pressed into the duodenum from the stomach. I did a posterior, no loop gastrojejunostomy by the suture method. I had but very little trouble in doing the operation; my only difficulty being the collapsed condition of the intestine, which, in a normal state, is very small. The operation was completed in twenty-five minutes. The patient left the table in about as good condition as before operation. He reacted nicely, and in four hours had a temperature of 103, pulse 150; vomited quite frequently during the first twenty-four hours. Normal saline, 1 ounce, was given per rectum every three hours for the first two days. One teaspoonful of milk, which was pumped from the mother's breast, was then begun, and was given every three hours with satisfactory results. The milk was then increased to 1 ounce every four hours. The temperature had reached normal by that time and the stools began to show some milk residue. The sutures were removed on the eighth day. The wound healed by first intention. There was nothing worthy of comment from that date until October 9, when it was discharged from the hospital. The child was last seen October 20, a little more than three weeks subsequent to the operation. The stools were regular and showed the digestion to be normal. The child weighed eight pounds and six ounces and was apparently in perfect health.

THE DIETETIC TREATMENT OF HIGH BLOOD PRESSURE.*

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In presenting the dietetic treatment of high blood pressure I wish simply to present the salient principles underlying the dietetic treatment of this common pathological condition, as carried out by me for the past six years, realizing that no hard and fast lines can be drawn in prescribing a diet—the individualism of the patient playing an even greater role in the dietetic regime than in the medicinal regime.

I shall not attempt to cover the literature of the subject, nor to even more than mention a source of the experimental data, explaining the good results obtained by proper dietetic measures. I do not wish to be misunderstood as advocating dietetic measures to the exclusion of other therapeutic procedure, but I have been told so often by competent men that they considered the diet as of no importance in this condition, that I am forced to the conclusion that such expressions are due to faulty methods of dieting and not to the procedure *per se*.

As most members of this Association are well aware, I have been paying particular attention for some time to the pathological conditions produced by the absorption of intestinal toxins of proteid origin.

In all, I have records of 300 cases of high

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arterial blood pressure, observed since first presenting the subject in 1905 (1), but space will not permit of a detailed description of each case in the present paper, nor shall I attempt to discuss the probable relationship between constant high arterial tension and alteration of the peripheral vessels. I realize only too well that the experimental results obtained so far would lead one into an endless labyrinth of hypothetical discussion.

I had, from the outset, observed that all cases of high arterial tension were associated with a heavy indicanuria, and treatment was accordingly directed towards overcoming this condition.

A careful examination of the following cases will reveal the fact that whenever the indican index was low, the blood pressure, as recorded with a Rivau-Rocci instrument and a Janeway cuff, also was low.

(Note—Blood pressure readings represent systolic pressure as recorded with Rivow Rolli sphygmomanometer and Janeway cuff.)

Case 1.—Mr. L. S., white male, 62 years of age, merchant, native of Germany, but a resident of Louisiana for forty years. I first saw him in October, 1907, when I was called, after a severe attack of vertigo resulting in his falling in his store. When I first saw him he had recovered consciousness, but complained of a severe headache of a throbbing character. As he expressed it, he felt "as if each beat of his heart would lift the top of his head off." He gave a history of having had ten or twelve such attacks during the previous two years and of having had almost constant vertigo and "buzzing in his ears," with occasional precardial distress. There was no history of lues and he had only occasionally indulged in alcoholics during his lifetime. He had always been a heavy eater. There was no history of constipation.

Examination showed: Heart hypertrophied, apex beat in sixth insterspace, two inches outside of mid-axillary line, but no murmurs audible. The beat was regular, 82 to the minute, and blood pressure registered 260 m. m.

Lungs, liver, spleen and appendix were apparently normal; no paralysis; pupils normal. Urine clear, specific gravity 1,020, reaction acid; no albumin, no casts, no sugar, but a great excess of indican present. Tongue was coated; temperature and respiration were normal.

A hypodermatic of 1-25 grain of nitroglycerin was given. He was given a hot footbath, with copious drinks of vichy, a purgative of phenol phthallein, calomel and rhubarb, followed by castor oil. He was put upon a non-nitrogenous diet, plenty of water and sodium nitrite gr. iii every three hours. Free catharsis was obtained, and the following day he returned to work, with a blood pressure of 170 m. m.

Urine still contained large amounts of indican and he was put upon a low nitrogenous diet for three days more, with effervescent phosphate of soda each morning. The sodium nitrite was continued, every four hours, with abundance of water. In two days all indican had disappeared from his urine and his blood pressure had fallen to 125 m. m. The nitrite of soda was then discontinued, and he was given ten grains of iodide of soda three times daily. He was put upon a low nitrogenous diet, which will be described later, and admonished to see that he had a daily movement of the bowels. He paid weekly visits to my office from October, 1907, to February, 1911, a period of over three years, and, invariably, when I have found an excess of indican in his urine, he has had a marked rise of his blood pressure, with accompanying vertigo and precardial distress. These symptoms were always preceded by a relaxation in his mode of living, with indulgence in meats, but not in alcoholics.

This case illustrates fully the effect of a low protein diet, as I had him under observation for a period of over three years, and feel that

he, as well as the subsequent cases reported, bear out Chittenden's experimental work with the United States Army squad in which he proved that Voit's old standard of 108 gms. of proteid was too high. Voit, as well as most of our present day physiologists and physiological chemists, in establishing the proteid needs of the body, have observed that inasmuch as a man in nitrogenous equilibrium loses 15 grams of nitrogen a day, it is necessary to replace this nitrogen with proteid. They do not take into consideration the large amount of nitrogen in the form of the various amines from intestinal putrefaction, which circulate through the body and never become a part of the tissues.

Case 2.—Mr. I. H., white male, 52, capitalist and sugar manufacturer. Blood pressure, at first examination, 220; moderate arterio-sclerosis. No valvular lesions, but heart hypertrophied; excess of indican; urine afterwards normal. I observed this case for a period of two years and, along dietetic lines alone, with no medicine whatever. His blood pressure has been kept at 135 to 145.

Case 3.—Mr. N. E., white male, cotton factor, aged 58. At first examination blood pressure was 260. No palpable hardening of arteries. Headaches and vertigo for two years at frequent intervals. Severe nose bleed one year previous, with relief of symptoms. Heart normal and only moderately hypertrophied. Mental condition impaired and inability to speak correct words at time of first examination. Urine normal, except for great excess of indican. Blood pressure reduced to 140 by low nitrogenous diet, abundance of water, moderate exercise, catharsis and three doses daily of sodium nitrite.

Case 4.—Mrs. A. B., white female, housewife. Blood pressure 190 m. m., reduced to 130, and with simultaneous drop in indicanuria. Observed for two years, with low blood pressure, except after error in diet.

Case 5.—Wm. L., white farmer, aged 57. Initial blood pressure 210; valvular heart lesions; *compensation good;* no albumin and no casts; excess of indican. Initial blood pressure 195; final blood pressure 125. Previous dyspnea and vertigo relieved and indicanuria overcome.

Case 6.—L. C., white farmer, aged 50. Mitral regurgitant murmur and *lack of compensation.* Interstitial changes in kidney. Low proteid diet but with restricted fluid and nitroglycerin. Initial blood pressure 210, final 110.

Case 7.—Mrs. S. I., white female, complaining of dizziness, dyspnea, pain between shoulders and nervousness. Although medicinal measures were pushed to utmost, urine was never free from indican and blood pressure never went below 170, as she would not follow diet.

Case 8.—Mr. A. J. McC., white male, aged 49, ice merchant. Suffered from hemorrhoids in addition to dizziness and fullness in head and excessive indicanuria. Initial blood pressure 240, final blood pressure 135, with relief of symptoms and no further trouble with hemorrhoids. Indican disappeared.

Case 9.—Mr. D. L. McP., white male, aged 44, banker. No symptoms, except chronic naso-pharyngitis. Initial blood pressure 180, final 145.

Case 10.—Mrs. A. L., white female, aged 35. Complained of dizziness, dry cough, headaches and pains in legs. Initial blood pressure 170, final 120. High indican index disappeared.

Case 11.—Mr. J. L., white male, farmer, aged 35. Complained of headache, dizziness, pain in back of chest and between shoulders and loss of appetite. Temperature 102, pulse 120, respiration 18. Great excess of indican urine turning jet black. Initial blood pressure 210, final blood pressure, in four days, 135, with absence of indican.

These cases were each treated along the same lines, beginning with a purgative, nitroglycerine and sodium nitrite and a non-nitrogenous diet for one to two days. Daily doses of sodium phosphate, phenol phthallein or cascara sagrada, with gradual diminution in the

amount of nitroglycerine and gradual increase in the amount of proteid allowed. My guide to the amount of proteid material allowable was the intensity of the indican reaction, using Jaffe's original method, but using peroxide of hydrogen in the place of a solution of chlorinated lime.

In all cases where cardiac compensation was not at fault, water was administered freely, with a view to diluting the intestinal toxins.

My *non*-nitrogenous diet consists of orange, lemon and grape juices, with sugar, preserves, fruit, crackers, sugar and peppermint candy, rice, corn starch pudding *without eggs* and tapioca pudding, which has such a low nitrogenous content as to be of no consideration.

My *low* nitrogen diet consists of oatmeal, cornmeal in the form of mush, fritters, pudding or corn cakes, shredded wheat biscuits, a small quantity of beans or peas, preferably in the form of a puree, nuts, wheat bread and toast, graham bread, chocolate, calves' foot jelly and vegetable soups and broths, together with the ingredients of the non-nitrogenous diet and buttermilk.

These results can be explained by experimental data.

Abelaus, Rabout, Saulie and Poujau (2) showed that putrid meat contained an active principle capable of raising arterial tension, and in the following year Dixon and Taylor (3) demonstrated that extracts of the slightly putrified placenta caused a marked rise in arterial tension when injected intravenously.

In 1909 Barger (4) isolated a base from extract of ergot, which he identified as para-hydroxyphenyl-ethyl-amine, and which, with the assistance of Dale (5) and Dixon, he showed had decided effect in raising arterial tension. About the same time Barger and Walpole (6) were able to isolate from putrid meat iso-amyl-amine, produced from *leucin* by putrefaction and para-hydroxyphenyl-ethyl-amine, produced from *tyrosin* by putrefaction and splitting off of carbon dioxide.

To Dale (7) is due the credit for working out the physiological action of each amine corresponding to the several amino acids formed in normal pancreatic digestion, and of these para-hydroxy-phenyl-ethyl-amine, which is very similar in chemical composition to the active principle of supra-renal extract, and which is almost identical in its action, he showed was capable of raising the blood pressure from 110 m. m. to 260 m. m., when injected intravenously. Dr. Dale kindly furnished me with a large supply of this substance and I have been able to repeat his experiments.

Clinically, Bain (8) was able to recover the base from the urine in cases with high blood pressure.

I have always, clinically, regarded high blood pressure as due to a toxemia and these experimental results explain the good results obtained by a low proteid diet and stimulation of elimination.

SUMMARY.

1. In cases of high blood pressure elimination is indicated by catharsis and copious administration of water, *unless the heart muscle is not functioning properly.*

2. A diet composed of substances which yield little or no tyrosin on digestion is indicated.

3. The diet of the patient with high blood pressure is as important as the medicines prescribed.

4. High blood pressure is probably caused by a toxemia, probably from para-hydroxy-phenyl-ethyl-amine, which is absorbed from the intestinal canal, where it is formed by the putrefaction of tyrosin.

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CO-OPERATION AS A FACTOR IN THE PREVENTION OF TYPHOID FEVER*

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Progress of any particular kind is the resultant of the operation of many diverse forces. It is rapid or slow according to the sum of the forces acting in one or the other of two particular directions. Advancements and retrogressions occur, and to the "watchers on the towers" progress must always appear slow. The people continue 'to sit in darkness and in the shadow of death.' From time to time some human unit flashes meteor-like across the fields of darkness and lights a way which all may follow; but a people progresses politically, socially, morally or hygienically only as the average intelligence of that people becomes awakened and is exercised in the right direction.

For generations tyrannical forms of government were endured because the masses of the people did not have the intelligence to coordinate and direct their rightful powers towards the correction of abuses and the accomplishment of better forms of government.

Throughout the ages those who have thought and wrought in advance of the spirit of their times have been subjected to more or less ridicule and persecution from their fellow men. For discovering great scientific truths, for proclaiming just political doctrines, for pointing the way to higher standards of ethics, men, in their own times misunderstood and dealt with as lunatics, incendiaries or heretics, have come to be appreciated by subsequent generations and honored, revered, or even worshipped. Such are the incidents and indications of progress.

As it has become better recognized that the world's store of knowledge is made up largely of that which, when first presented, appeared to the many as useless, man has gradually become more liberal in his judgment of his fellowmen whose opinions differ from his own. Our heretics we no longer burn at the stake—though we may still at times subject them to some milder and slower form of torture—and freedom of opinion, manifested in word and deed, is exercised throughout the world to a greater extent today than ever before since the chronicle of human events began. One presenting measures for the betterment of the human race is given a fairer hearing now than probably ever before, and consequently the opportunities for the individual to mark a step in progress are expanded. A realization of the increased opportunities has added zest to the struggle, and certain abuses naturally have followed. Many strange sects and cults, with purposes opposed to true progress, have arisen; but in the crucible of time the gold is separated from the dross, and progress goes on.

Individual freedom, as implied in the theory of democracy, has been one of the chief causes and also one of the best results of modern progress.

Progress in one field facilitates progress in other fields of human endeavor. Thus progress in ethics promotes political progress; progress in politics promotes industrial progress, and each and all of these promote hygienic progress.

The last one hundred and fifty years comprise a period which will always stand out remarkably in the world's history as one of industrial progress. In bringing about this progress, scientific invention has been one of the chief factors, and the individual human

*Read before the Section on Hygiene and Sanitary Science of the Ohio State Medical Association at its sixty-sixth annual meeting held at Cleveland, May 9-11, 1911.

being has profited especially. In speaking of the individual, or human unit, as affected by the progress of the nineteenth century, William Osler, the poet-laureate of the medical profession of the present generation, says:

"Science emptied upon him, from the horn of Amalthea, blessings which cannot be enumerated—blessings which have made the century forever memorable, and which have followed each other with a rapidity so bewildering that we know not what next to expect. To us in the medical profession, who deal with this unit, and measure progress by the law of the greatest happiness to the greatest number; to us whose work is with the sick and suffering, the great boon of this wonderful century, with which no other can be compared, is the fact that the leaves of the tree of science have been for the healing of the nations. Measure as we may the progress of the world . . . there is no one measure which can compare with the decrease of physical suffering in man, woman and child when stricken by disease or accident. This is the one fact of supreme personal import to every one of us. This is the Promethean gift of the century to man."

If the great triumph of the nineteenth century was the *alleviation* of human suffering, the signs of the times now seem to be that the great triumph of the twentieth century will be the *prevention* of human suffering by the prevention of disease.

To those awakened to the facts, progress in hygiene, or advancement in disease-prevention, is recognized as being one of the most important results which can be accomplished for the welfare of a people. It is interwoven with all other desirable progress. It is advanced by enlightenment, retarded by ignorance. It is advanced by broad altruism, retared by narrow selfishness. In fact, it advances and is advanced by everything which makes for civic betterment.

The twentieth century has begun auspiciously. The many notable achievements in sanitation in different parts of the world during the last ten years give brilliant promise of what the future holds. Statistics about diseases now are being collected more carefully, and being published more extensively and more sensibly than ever before, and in consequence the people generally are becoming more intelligently interested. Science has pointed out efficient and thoroughly practicable methods of preventing most of the communicable diseases. Then, it may be asked, "When all the temple is prepared within, why nods the drowsy worshipper outside?" Why is the world not progressing hygienically at the rate at which it is industrially or politically? If many diseases are preventable, if their prevention is desirable, if methods to prevent them are known, why are they not being more effectively prevented? The answer, all too obvious, is—because of lack of incentive.

It is human nature to seek the fields which appear to offer the richest harvests. Man has not yet become pre-eminently altruistic. He expects some remuneration for his labors. For the average young man at the present time, about to begin his life's work, compare the inducements held out by the field of disease-prevention with those held out by the field of business or politics. Compare the salary of the successful health official with that of the equally successful surgeon, lawyer or business man. By so doing we arrive quickly at the world's estimate of the relative value of work for the prevention of disease. Before satisfactory progress in hygiene can be accomplished, disease-prevention work must come to be regarded by the people generally as a vitally important business, rather than as a side issue, or as a fad indulged in by a few well-meaning but impractical persons. More business-like methods must be instilled into public health work and more public-health work must be instilled into business. In short, there must be that co-operation without which progress in no direction can be made.

THE POSITION OF THE AMERICAN NATION IN DISEASE-PREVENTION.

For a people living under a republican form of government the will of the majority, though slow of expression at times, is ultimately supreme. Progress in any desirable direction is made as the intelligence of the masses is awakened and exercised. America, with its wonderful natural resources, with its liberal form of government furnishing wonderful opportu-

nities to the individual who would advance, has made phenomenal progress, and industrially and in certain other respects stands today at the head of the world's list of countries. But how does this country stand in respect to disease-prevention, in respect to the conservation of that most important of a nation's resources, its public health? Typhoid fever, a thoroughly and comparatively readily preventable disease, has been during the last ten years over four times more prevalent in the United States than in Germany, Great Britain, Switzerland, and other civilized countries. This disease decreases as sanitation increases, and its rate of prevalence among a people may be taken as a fair index of the sanitary intelligence exercised by that people. Why has the great American nation lagged so far behind in the prevention of this disease? Because we have been so busied with the exploitation of other fields open to human endeavor that we have not had time to give due attention to that of disease-prevention.

Many of our magnificent cities, busied with industrial development, the establishment of splendid schools and colleges, the construction of wonderful buildings and boulevards, go on obtaining their water supplies from sewage-laden streams and using milk supplies reeking with filth until the people are startled into intelligent action by the occurrence of epidemics. Tell the average business man in an American city that the annual typhoid death rate in his city is 50 per 100,000 of population, and he is not particularly impressed with the information. But tell that same man that a few cases of cholera have been found in his city, and he at once becomes most actively concerned. Why the difference? One of these diseases is as preventable as the other, and it so happens that both are preventable by exactly similar measures. But the business man recognizes in cholera a disease which threatens business interests. The people generally are aware of its dangers, and will demand heroic measures for its eradication.

When the masses of our people have become educated to understand the full meaning and the needlessness of an annual typhoid death rate of over 5 per 100,000 of population in any community and to demand business-like proceedings on the part of the authorities when the rate reaches or exceeds that figure, the nation will have reached a reasonably advanced position in sanitary progress. The education of the people to higher hygienic standards of living is one of the chief duties of health officials and of others who would advance the cause of public health. Let the people appreciate the true value of health conservation and the ways and means to enforce the measures which science has shown to be effective, will be furnished. The community whose people have sufficient sanitary intelligence to appreciate to a reasonable degree the dangers associated with the use of sewage-polluted water and dirty milk, will not have to be visited by a devastating epidemic of typhoid fever or cholera before the incentive will be furnished for the obtainment of safe water and milk.

The forces making for better public health in America are increasing at a gratifying rate. The people are becoming better educated. Individual health officers are becoming better paid and are rendering more efficient service. Practicing physicians are becoming better informed about the nature of communicable diseases and as individuals are doing more to prevent the spread of infections. But a crying need of the times is a co-ordination of the forces, a co-operation of the individuals actively engaged in disease-prevention work.

NATURE AND SOURCE OF TYPHOID FEVER INFECTION.

The modes of dissemination and the methods for the prevention of typhoid fever are now quite well known; in fact, there are few infectious diseases about the spread of which so many convincing facts have been recorded. The disease is caused by germs which are parasitic in nature and dependent upon man,

as their permanent host, for their continued existence. These germs are discharged in the dejecta from the bodies of infected persons. From such dejecta they may be conveyed by various agents, such as water, foods, fingers, flies, etc., to the alimentary canals of healthy persons, and so be continued on their disease and death-dealing course. To prevent typhoid fever it is evident, therefore, that all that is necessary is to disinfect the excreta from infected persons or to dispose of these excreta in such a way that the germs cannot be conveyed from them to the mouths of persons. Such a plan of action seems simple enough, and if it could be carried out on a sufficiently broad scale, would undoubtedly prove successful. Certain conditions, however, make the carrying out of this plan more difficult than it may at first appear:

1. Some persons continue to harbor typhoid germs and to discharge them in their excreta for weeks, months, or even years after an attack of the disease. Others contract the infection, and, though never having a clinically recognizable attack, become germ-carriers. In order to safe-guard the community against these sources of infection, it is necessary to have the excreta from all persons—the sick and the well—properly disposed of.

2. The people of a given community may use water, milk and various food-stuffs coming from a distance and liable to become contaminated with the excreta from infected persons over whom the officials of that community have no jurisdiction. Thus the problem of typhoid fever prevention becomes one of state, national, or even international extent, and for its solution cooperation between individuals and between communities is essential.

NEED OF COOPERATION IN THE PREVENTION OF TYPHOID FEVER.

Between the fields of activity in the prevention of disease there should be no twilight zones. Within a State the local officials in neighboring communities should cooperate with one another, and all should cooperate with the State officials. Between the States there should be cooperation, fostered and aided by the national officials. Much typhoid fever in the United States is still caused by water-borne infection which could be done away with by reasonable and equitable cooperation between cities and between States, for the control of sewage-pollution of streams and lakes.

Much typhoid fever in our towns and cities is caused by infection introduced in milk supplies, and which could be done away with if the inhabitants would cooperate in demanding milk which reached a reasonable standard of purity. As the demand would arise, the supply would become available. If the grocers and hucksters should combine as effectively for the prevention of typhoid fever as they are said to have done in some instances for other purposes, they could establish a standard of sanitation for the American farm.

If the merchants, the real estate men and the business men generally should combine as effectively for a crusade against disease as they frequently do for business purposes, no city would remain long without a clean water supply, a good sewerage system, a safe general food supply, an adequately paid and efficient health department, and ample laws properly enforced for the prevention of the spread of infection from the bedside of the sick—in short the combination of results by which typhoid fever in a city will be reduced to a negligible quantity.

Legislators and business men may be seen frequently among the callers at the health office of the large American city. Business men engaged in the preparation and sale of foods are particularly frequent callers; milk dealers, ice cream manufacturers, vendors of bottled waters, grocers, or bakers, assemble there, often in large groups, for conference with the health officer. With what purpose do these gentlemen come? Are they there to obtain from the health officer information as to how they may conduct business more sanitarily? Very rarely one may come quietly

for such a purpose, but in the vast majority of instances they come for the purpose of persuading the health officer to make some relaxation in his enforcement of laws and regulations designed for the preservation of the health and lives of the men, women and children in the community. They represent the interests of an organized minority, as opposed, in many instances, to the interests of an unorganized majority.

The forces to prevent typhoid fever in America are most ample, and the important problem for our sanitarians to solve is how to get these forces co-ordinated and applied in the right direction. What is everybody's business is nobody's business. So the first question to decide is: Is the prevention of typhoid fever the particular business of anyone? Yes," says the average citizen, somewhat glibly, perhaps. "It is the particular business of our health officer." But without cooperation from others the health officer can accomplish but little, and most important to his success in the prevention of typhoid fever is the co-operation of practicing physicians in his community.

WHY PRACTICING PHYSICIANS SHOULD BE EXPECTED TO COOPERATE.

As a rule, the physician who attends the patient is the first to determine the nature of the illness. Having the earliest information, his is the responsibility to get carried out the necessary precautionary measures to safeguard the family and the community against the spread of infection from the patient. Ethically his duty is just as clear as is that of a man who discovers a fallen railway bridge before a rapidly approaching passenger train. The physician may hold that the duly appointed health officer has the responsibility for the prevention of typhoid fever in the community; likewise the man at the railway bridge may hold that the railroad company is responsible for the condition of the track.

The patient's bedside is a fountain-head of infection. There the infection may be readily destroyed, but once allowed to escape from there it may be spread in many and devious ways and become very difficult, if not practically impossible, to control. In a number of instances an extensive outbreak of typhoid fever has resulted from some of the dejecta from only one patient having gained access to a water supply, milk supply or some other favorable medium. The outbreak at Plymouth, Pa., in 1885, was quite definitely determined to have been due to the pollution of the water supply with the dejecta from one man ill with typhoid fever. Had the excreta from that one patient been disinfected at the bedside, Plymouth, then with a population of about 8,000, would have been spared an epidemic in which about 1,100 persons were affected and 114 died.

Occasional disasters such as this, teach, in a startling way, a valuable lesson. The number of cases occuring in the course of pronounced and explosive outbreaks, however, composes but a small proportion of all the cases occurring in the country every year. For the majority, the infection is spread insiduously from home to home, from community to community—hands, water, milk, various foodstuffs, flies, etc., serving as agents of transmission—the primary source of the infection, however, being always the improperly disposed of excreta from some infected person.

In some instances infection may be spread from a patient before the physician is called, but if the physician, as soon as he does arrive, has proper precautionary measures started the greater part of the spread of the infection will be prevented.

Until the health department has been notified of the case it is, of course, unable to do its part in the enforcement of precautionary measures at the bedside of the patient. Therefore, for the health department to have a chance to render efficient service in the prevention of typhoid fever, the cooperation of

practicing physicians—to the extent at least of reporting their cases promptly—is essential.

WHY PRACTICING PHYSICIANS DO NOT COOPERATE AS THEY SHOULD.

The attending physician naturally hesitates about reporting a case as one of typhoid fever until he is reasonably sure of the diagnosis. In many cases the disease—especially in its early stages—cannot be positively diagnosed from the clinical symptoms alone. Laboratory tests may be necessary. By blood cultures a positive diagnosis may be established in the first week of the disease in over 90 per cent of cases. Between the tenth and twentieth days of illness the vast majority of cases will give a positive Widal reaction.

In some instances practicing physicians are not able to secure the aid of laboratory tests, and in many instances they do not avail themselves as freely as they should of laboratory facilities, which are readily available.

Infection is frequently discharged from typhoid patients from the very beginning of illness. Therefore, it is all important to begin preventative measures early, which often cannot be done if the establishment of a positive diagnosis is waited for. Early precautions about a doubtful case may prevent an epidemic.

The majority of cases of typhoid fever at the time of the physician's first visit will present symptoms sufficiently definite to cause any competent physician to suspect—to a slight extent, at least—the true nature of the disease. As soon as a case is so suspected, prophylactic measures at the bedside should be begun. In respect to diet and therapeutic treatment the patient is usually given the benefit of the doubt and in respect to prophylactic treatment of the patient the community should be given the benefit of the doubt.

On the first slight suspicion of typhoid fever the physician should report the case as one of *suspected typhoid* and the carrying out of precautionary measures at the bedside should be begun at once. If later on, it is determined that the case is not one of typhoid fever the disinfection of the dejecta from the patient will have done no harm.

In the District of Columbia, where typhoid cases are reported more completely and more promptly than in the majority of large American cities, more than 50 per cent of typhoid fever patients are sick in bed and attended by physicians for over ten days before being reported to the health department.

The neglect of practicing physicians to report their cases of typhoid fever promptly, or at all, may be due to one of several reasons:

1. *Doubt as to the correctness of diagnosis.* Some physicians are apprehensive about the effect which a possibly subsequent change in diagnosis may have upon the minds of the patient's family.

2. *Lack of remuneration.* The busy practitioner may feel that the time required to fill out properly a report card can be used otherwise more profitably. Since the report of a case of contagious disease is for the good of the community, it is considered by some as being reasonable for the physician to demand a small fee, of say twenty-five or fifty cents, for rendering such service to the community.

3. *Carelessness and procrastination.* The tendency of human nature is to put off doing the less urgent until the more urgent things are done. In most American communities the health officials have not succeeded in convincing the practicing physicians that a prompt report of their typhoid cases is a very urgent duty. The doctor puts off sending in the report card and finally forgets about it.

4. *Disinclination to have the patient's family disturbed by the activities of the health* officials. In some instances a place of public business—such as a grocery store, a bakery or a dairy—may be closed by the health department on account of a case of typhoid fever being in the same building, and for reporting such a case a physician may lose the practice of a family.

5. *Lack of appreciation of the responsi-*

bility. Some physicians appear to think that their responsibility begins and ends with the care of the patient. Others are lacking in knowledge of the communicability of typhoid fever, and it is not very infrequent for the report of a primary case in a home to be delayed until a secondary case has occurred.

6. *Over estimation of personal prerogatives.* Some physicians appear to regard as appertaining only to themselves all that concerns the patients to whom they are giving professional care, and more or less resent the visits which health officials may make to the homes of their patients for the purpose of advising about prophylactic measures.

Of these reasons the chief is probably the lack of proper appreciation of the civic responsibility which is placed upon the physician when a case of typhoid fever comes under his care.

There is no man to whom the word duty means more than it should and does to the true physician, and it is a safe prediction that if all the practicing physicians in Ohio could be convinced that it is their duty to do all they readily can in the prevention of typhoid fever, and would cooperate heartily and intelligently in a campaign against this communicable disease, the State of Ohio would soon have a typhoid fever rate so low that it could be pointed to as unmistakable evidence of one of the greatest triumphs in sanitation which the world has ever known, and as an important item in the already long list of notable achievements of this great commonwealth.

HOW PRACTICING PHYSICIANS CAN COOPERATE IN THE PREVENTION OF TYPHOID FEVER.

1. *Become informed as to efficient methods of prevention to be carried out at the bedside.* Such information is readily obtainable. Most of the health organizations at the present time have literature on the subject condensed and ready for public distribution. In recent years the methods have been taught in the medical schools of good standing, and they may be found in many of the modern textbooks. There is now no reasonable excuse for physicians not to know them, and State examination boards should see to it that candidates for license to practice medicine do know them.

2. *Teach by precept and by example precautionary measures at the bedside.* The attending physician, in his frequent visits to the patient, has a much better opportunity to instruct thoroughly the attendants of the patient than the health officer possibly can have in his one or two official visits to the home for that purpose. Besides, the physician, at each of his visits, has an opportunity to see how the precautionary measures are being carried out and to correct the methods when need be. The doctor, as a rule, is regarded by the members of a family as a friend and protector. What he tells them will impress them much more than what is told them by the health officer, whose visit to the home, in many instances, is regarded as a mere formality.

If the doctor has convinced the family that typhoid fever is not "contagious," and that there is no danger of persons "catching" the disease, or of having it communicated to them by the sick, the health officer will have much difficulty in making that family believe that the precautionary measures which he advises are other than utter nonsense. After the disease has been "caught" by one or more members of the family, some scepticism as to the infallibility of the family physician's opinion may arise in the minds of the household, but it is then too late to profit fully by the intelligence.

To set an example of proper cleanliness in the sick room is very important. If the doctor, after handling the patient, leaves the house without washing his hands and continues on his round of practice, the attendants of the patient will have due cause to wonder why they should be so careful about their hands when the doctor is so careless about his own.

Whenever possible there should be an agree-

ment between local health officials and practicing physicians in respect to the kinds of disinfectants to be recommended for use.

If the family on the advice of the attending physician, is using for the disinfection of the dejecta some preparation, esthetic and costly perhaps, but lacking in germicidal properties, or is keeping a saucer of carbolic acid under the bed or a sliced onion on the mantel for the purpose of "killing the germs in the atmosphere," the health officials will have some difficulty as well as embarrassment in persuading that family to use efficient disinfectants.

3. *Report promptly to the local health officer all cases recognized as or suspected to be typhoid fever and have precautionary measures begun immediately.* The attending physician can do much to facilitate the work of the health officer by advising the family that a representative of the health department will call at the home to give instructions about precautionary measures, and by encouraging the family to follow the instructions so received. In lieu of a health officer to call at the home the attending physician should make his own instructions to the family particularly emphatic and definite.

4. *Advise and have carried out methods of prevention which are practicable.* It is poor judgment to advise a poverty-stricken family to use an expensive disinfectant. Fortunately, some of the best chemical disinfectants, such as chloride of lime and carbolic acid, are among the cheapest. On some occasions, chemical disinfectants are not immediately obtainable. Though it is much easier to carry out the precautions when these agents are at hand, a fairly complete safeguard may be secured by the intelligent use of the agents available in practically every home. Water, while boiling, to disinfect the stools and urine, the bedding, dishes, spoons, etc., thorough scrubbing with soap and hot water the hands of the attendants, and reasonable isolation of the patient and his attendants—these things may be done in every instance.

5. *Continue preventive measures as long as the dejecta are infective.* The majority of typhoid convalescents, by the time they are able to walk around, no longer discharge typhoid bacilli in their dejecta. Some persons, however, apparently recovered from the attack of fever, continue to pass typhoid bacilli in the urine or feces, or in both, for months or even years. It is estimated from the results of extensive bacteriological examinations that about three per cent of persons who have had typhoid fever become chronic bacillus carriers. A good rule to follow on general principles is to continue the use of disinfectants for at least two weeks after defervescense. In case of relapse, the same precautions, of course, should be taken as in the original attack.

Whenever practicable to do so, bacteriological examinations of the dejecta should be made, and the patient not discharged until at least two such examinations have given negative results for the typhoid bacillus. This should become a requirement for all cases treated in hospitals, cities and other places where laboratory facilities are available. A typhoid convalescent with any cloudiness of the urine should invariably be treated as a case of typhoid bacilluria.

6. *Teach the importance of proper disposal of human excreta.* Typhoid infection may be disseminated in the dejecta from persons who are in the early stages of the disease and before they have taken to bed, by cases which remain ambulant throughout the attack, by convalescents (acute bacillus carriers), and by persons who, though apparently in good health, are either temporary or chronic bacillus carriers.

In order to safeguard the family and the community against these sources of infection, it is necessary to have excreta of all persons—the sick and the well—properly disposed of. In communities not provided with water-carriage sewerage systems, physicians should emphasize, at every opportunity, the great importance of the building and the use of san-

itary privies. Every physician in such a community should have a properly constructed and managed privy at his own home. What the doctor does to protect his own family will frequently impress the neighbors more than what he tells them to do.

7. *Give consistent advice in regard to polluted water supplies, milk and food supplies generally.* What the physicians in a community tell the people about the water supply, the milk supply, etc., as possible sources of infection, frequently will have much more effect than the proclamations of the health officer.

When doctors disagree the lay mind is left in doubt. If Dr. A tells a mother that it is advisable to pasteurize the market milk before feeding it to her children, and Dr. B tells her that pasteurized milk is injurious to health, the mother may not be able to discriminate, or she may conclude, quite naturally, that doctors do not know much about milk and babies, anyhow.

It is highly important for physicians to have as nearly as possible a concensus of opinion about local sanitation, so that consistent advice may be given. Therefore,

8. *Make the local medical society a school of instruction in the principles of prevention, as well as the cure of disease.* Here the local problems of sanitation can be considered from the different standpoints of the different physicians. A committee on disease prevention should be appointed to present before the meetings for discussion and resolutions the problems at hand.

9. *Help secure efficient health officials.* It is well for the members of the local medical profession to have something to do with the appointment of the local health officer. In some instances the antagonism of the physicians in a community to the health officer is due partly to the fact that they regard him as an outsider, or as a political appointee, not familiar with local problems. If the health officer has been appointed on the recommendation of the local medical profession, the physicians naturally will be inclined to support him in his work. Without the support of the practicticing physician in the community, the local health officer will be seriously handicapped in doing effective work.

From ancient times the medical man has been accredited by his tribe with possessing unusual wisdom, and the practicing physician advertently or inadvertently may remove in a moment from the minds of a family a perfectly correct impression in regard to some matter of sanitation which the health officer in his campaign of education has taken months, or perhaps years, to create. By just and equitable dealings, the practicing physician may help the health officer in his work and the health officer help the physician in his practice.

10. *Help to create a public sentiment for proper sanitation and so aid in the procurement of desirable legislation.* Legal requirements for advances in sanitation must be such as the people wish and demand of their representatives in the legislative bodies. The practicing physician is one of the greatest factors in the moulding of public opinion about the causation and prevention of disease.

Such are some of the ways in which practicing physicians can cooperate in the prevention of typhoid fever. Summed up they are just this—the fulfillment of the civic and humane obligations which the opportunities of a high and noble profession place upon a part of the American body politic.

Gradually, but progressively, through the school room, the newspaper, the popular magazine, the health department bulletin and other agencies, the sanitary intelligence of the people generally is being awakened. As a result, there is being demanded, from year to year, greater efficiency in disease prevention, and the indications are that the time is not far distant when the services of the family physician will be engaged as much for the prevention as for the cure of disease.

Of the widely prevalent infectious diseases in America, none promises better results from

equivalent amounts of intelligent effort at prevention than does typhoid fever.

Our city, county, state and national health organizations are becoming more active in the enforcement of measures to prevent this disease.

As the work of the health authorities to prevent typhoid fever is increased a greater demand will be made upon practicing physicians for cooperation. The history of the medical profession warrants the prediction that such demand shall not be made in vain; and, as in the alleviation, so in the prevention of human suffering, at the call of the master word *duty,* the practicing physician will make good.

CONTROL OF TYPHOID FEVER BY VACCINATION.

By J. J. PETERSON,
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To Sir A. E. Wright, of England, is largely due the credit of combating typhoid fever by means of inoculations of killed typhoid cultures.

The history of anti-typhoid vaccination is completely summed up in an article by Major F. F. Russell, U. S. Army, read before the New York Academy of Medicine, October 20, 1910.

As early as 1886 Frankel and Simonds found that several small non-lethal doses of typhoid bacilli would protect rabbits against subsequent fatal doses.

In the same year Beaumer and Peiper immunized mice with potato cultures of typhoid bacilli. By using small but increasing doses they were able to give definite protection against subsequent fatal doses. They suggested the use of sterilized cultures for the immunization of men, but made no investigation themselves. Chantemesse and Widal, Sanarelli and others reported work on animals of the same character, but practically nothing was then known of the toxin of the typhoid bacillus nor of the nature of typhoid immunity, little or nothing came of the work.

In 1892, Breiger, Kitasato and Wasserman showed that it was unnecessary to use living bacilli, since killed cultures were equally effective, and the immunizing substance was an integral part of the body of the bacillus.

Broth filtrates which had been used to some extent up to that time were effective only in so far as they contained particles of bacterial cells. All of the earlier works on animals was quite incomplete and unsafe as a guide in the immunization of man, as at that time there was no way of detecting changes in the blood serum after inoculation and consequently no way of knowing what protection had been conferred.

It was not until 1893-1894 that Pfeifer, working with Wasserman, Kalli and Isaeff, discovered the nature of immunity in typhoid and at the same time elaborated a method of measuring its quantity. They recognized that the character of immunity and its degree depended upon the presence of bacteriolytic immune bodies in the blood serum, and the test formulated at that time has since become classic under the name of the Pfeiffer phenomenon. It is made by inoculating a series of guinea pigs intra-peritoneally with fatal doses of typhoid mixed with diminishing quantities of immune serum, and examining the peritoneal exudate for signs of degeneration in the bacteria. If they are dissolved and the pigs live, the phenomena is present. If the bacteria are not attacked and the pigs die, the test is negative. Until the discovery of agglutinins

*Read before the Southern Medical Association, at Hattiesburg, Miss., November 14-17, 1911.

and later of opsonins, the entire fabric of proof of the efficacy of immunization depended upon the demonstration of bacteriolytic amboceptors in the blood serum. The results obtained by this proved conclusively in both animals and man the possibility of producing a high degree of immunity against typhoid by the use of killed cultures.

The first actual immunization of men for the purpose of protecting them against typhoid was made by Pfeiffer and Kolie in 1896. They immunized two men and investigated the specific changes in the blood serum thoroughly.

They showed that not only were agglutinins produced, but what was more important, that the bacteriolytic power of the blood was raised in the same way as during an attack of typhoid.

So far as is known at present we have then the same antibodies produced as a result of inoculation as are produced during clinical typhoid, and the quantity seems to be even greater after vaccination than after clinical typhoid. It is therefore not unreasonable to expect that the immunity conferred by vaccination will last for a considerable period. This is a question that can only be answered by statistics and it will be some years before it will be answered definitely.

In 1897 Wright published results of inoculation upon eighteen men and was convinced by this experiment of its value, and advised its adoption by the English Army.

In 1898, through the efforts of Wright, it was used in the British Army in India with most encouraging results. During the Boer war Wright furnished 400,000 doses to the British Army. Statistics were poorly kept. There was wide divergence of opinion as to its value and much adverse criticism. Wright collected statistics of 19,000 cases which showed favorably. In 1902 the difference of opinion in various quarters caused discontinuation of its use in the English Army.

Investigation decided that statistics may have been at fault. Leischman showed that typhoid vaccine may be greatly weakened by over-heating, and this is thought to have been one of the reasons that results were not more satisfactory. The earlier vaccines used by both the English and German troops may have been over-heated in preparation.

KUHNS' STATISTICS.

The German troops sent to South Africa from 1904 to 1907 numbered 16,496 men, and of this number 7,287 men volunteered for vaccination. The following are the results:

Among the 16,496 men there occurred 1,277 cases of typhoid. Among the uninoculated the percentage of cases was 9.48 per cent. Among the inoculated 5.09 per cent.

	TOTAL CASES.			
	Uninoculated		*Inoculated*	
	Cases	Per Cent	Cases	Per Cent
Light cases ...	331	36.55	186	50.13
Moderate	225	24.85	96	25.88
Severe	234	25.80	65	17.52
Fatal	116	12.80	24	6.47

These statistics were very accurately kept. It shows a lower percentage of cases. A larger number of light cases and death rate of half.

In 1904 typhoid vaccination was re-adopted in the British Army.

Latest reports from English troops in India by Sir W. E. Leischman:

Inocoluated.....10,378		*Noninoculated*.....8,936
Cases of typhoid.	56	272
Deaths	5	46
Cases per 1,000..	5.39	30.4
Mortality	8.9	16.9

A most striking example of the efficacy of typhoid vaccination is afforded by the comparison given by Col. J. R. Kean, of Army Medical Corp in Journal American Medical Association, August 26, 1911.

In 1898 there were mobilized at Jacksonville, Fla., 10,759 men. There occurred 2,963 probable and certain cases of typhoid fever, with a total of 248 deaths.

In 1911 there were mobilized near San Antonio, Texas, 12,801 men. Vaccination was compulsory. All the men who had not been previously vaccinated were immunized with typhoid bacterin. The time that both bodies

of troops were encamped was about the same. The latitude was practically the same. Both had good camp sites with a water supply of unquestioned purity.

	Jacksonville	San Antonio
Number of men	10,759	12,801
Cases of typhoid	2,963	1
Deaths	248	0

During the time of the maneuvers there were forty-seven cases of typhoid in the city of San Antonio.

In the spring of 1911, in Mobile, Ala., there were a few cases of typhoid present. About the first of July there was an explosive outbreak and there were eight or ten cases of fever reported daily to the Board of Health for some weeks. Up to the first of November, 1911, there had occurred 498 cases of typhoid fever in Mobile for the current year. The public press proclaimed the presence of typhoid in loud tones and the people became much alarmed as a result. At the advice of their physicians a number of them were immunized with typhoid bacterin. Some of the vaccinated people were not exposed to the disease directly, but a great many of them were living in the house with cases of the disease. Quite a few doctors and nurses who come in daily contact with the disease were inoculated.

I was interested in the subject and made an effort to ascertain what the result of these inoculations were. To secure this information I addressed a letter to every doctor in Mobile County asking the number of persons they had immunized. Also how many of those immunized subsequently developed typhoid fever. In reply I received from forty-five doctors reports of a total of 779 cases. Of this number not a single one has developed typhoid up to November 1, 1911.

Dr. E. W. Cawthon, in replying to my letter, writes as follows:

"An interesting fact, which in my mind removed any doubt as to efficacy, was that in one house there were fourteen occupants—seven of these were in active stage of typhoid. The remaining seven were immunized with no further developments of typhoid in the house. The house and surroundings were about as unsanitary as I ever saw or expect to see."

"As now prepared, a non-virulent strain of the typhoid bacillus is grown on agar slanted in flasks for eighteen hours. The growth is then emulsified in sterile salt solution. The emulsion is then standardized so that 1 C. C. of emulsion contains 100,000,000 bacilli. It is then sterilized at a uniform temperature of 56 per cent centigrade. It is then tested aerobically and anaerobically, then 0.25 per cent of tricresol is added as a preservative. It is then put up in sterile glass ampules or syringes. As a final test it is given to guinea pigs to see that it is innocuous."—(Journal American Medical Association, November 19, 1910. J. R. Post.)

I have purposely not gone into the technique of counting the bacilli and have omitted discussion of the various culture media which have been employed. Nor have I discussed experiments which have been made with virulent and non-virulent strains. The vaccine is not used for three weeks after preparation and is said to retain its maximum efficacy for three or four months.

DOSAGE.

The accepted dosage for adults consists of three inoculations given at intervals of ten days—this for average 150-pound man. Doses for children are figured on this basis. The first inoculation given is 0.5 C. C., or 500,000,000 killed bacteria. The second and third injections are 1 C. C., or 1,000,000,000 killed bacteria to each dose. Its use is not advised in the very aged, very young, or very feeble individuals.

The site of election for administering the vaccine is over the deltoid muscle of left arm. It is given hypodermically under the skin. It is claimed that intramuscular and intracutaneous injections are more painful than when the injection is given just beneath the skin. The injections are always to be made under

strict aseptic conditions. The point where the injection is to be made is painted with tinct. iodine. The injection made and the excess of iodine removed with a little alcohol or ether on sterile gauze or cotton. The point of puncture is then sealed with collodion or covered with sterile gauze or cotton held in place by a piece of adhesive plaster.

EFFECT OF VACCINATION.

A few hours after vaccination there is a hyperemic spot around the point of puncture. This may be very small or it may extend from shoulder to elbow. Along with this there is a good deal of stiffness in muscles of shoulder and arm accompanied by dull, aching pain. Some one has suggested that tricresol added as preservative may be responsible for this first reaction. In some cases the hyperemia is followed by brawny induration with enlargement and tenderness of axillary glands. This local reaction may not be accompanied by systemic disturbances.

In all my cases there were some systemic disturbances particularly after the first inoculation. This disturbance was all the way from slight malaise to hard chills and rise of temperature to 104 F. Others presented nausea, rigors, pains in all parts of body, and one case developed a profuse diarrhoea of pea soup looking stools. In no case did symptoms last longer than forty-eight hours, and only one went to bed.

I can find no record of any serious effect having followed injection of typhoid bacterin, nor can I find any record of a case where suppuration has followed the injection. All cases which have been vaccinated against typhoid show Widals reaction as positive. This test is of no diagnostic value after a person has been immunized.

Sanitary campaigns waged against typhoid fever can never stamp the disease out, as it has been shown that about 2 or 3 per cent of recovered cases are typhoid carriers. Another point is that the modes by which the infection is spread are so numerous that we cannot control all of them perfectly. I believe that sanatarians have secured a valuable aid toward diminishing this dread disease, and it puts into the hands of the practitioner a means of controlling outbreaks in families where he is the doctor.

In the wars of the future it will play a great part in keeping up the health of the personnel of our armies and it is applicable to schools, mining and lumber camps, and, in short, anywhere where typhoid is prevalent. I see that the Memphis, Tenn., Board of Health is now furnishing it gratis when needed. Many other cities could follow this example with profit.

Most of the statistics and data in this paper were furnished me by Major. F. F. Russell. M.D., of the United States Army, and I wish him to get proper credit.

GLAUCOMA—ITS MORE RECENT PATHOLOGY AND TREATMENT.*

By G. C. SAVAGE, M.D.,
Nashville, Tenn.

If in the text-books on ophthalmology the last word has been said on glaucoma, there would be great reason for continued sadness, not only on the part of sufferers from glaucoma, but also on the part of those who undertake its treatment in any of its forms. The symptomatology of the disease is well-known, and the teaching of the books that nearly all of the symptoms are chargeable to intraocular pressure must be true. The teaching of text-books as to the cause of this intraocular pressure is not satisfying, and yet each declaration

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would appear to be explanatory of the symptoms. Secretive choroiditis and narrowed circumlental zone have been the two theories that have appealed most to me. The closing of the spaces of Fontana I have always considered secondary, but have always recognized that, when these spaces become closed by the pushing forward of the iris, the pressure symptoms would be thereby aggravated.

The first real clear light that I have ever had touching glaucoma and its treatment was given me by Dr. Martin H. Fischer, of Cincinnati, in a paper which he presented on glaucoma at the last meeting of the American Academy of Ophthalmology and Oto-Laryngology. Many of his statements seemed to be very strong, but the earnestness of the man impressed me that he believed he was teaching the truth. I never listened more intently to any paper than to that one, and by the time he had finished his discourse I was an easy convert to his teachings. He pronounced glaucoma as a local oedema, and he declared the cause of this local oedema to be acidosis of the ocular tissues. In this connection he declared that the causes of all oedemas reside in the tissues involved. It is not my purpose, in this short paper, to present the reasonings of Dr. Fischer, but would refer every one interested in the study of oedema to Dr. Fischer's book on Oedema, published by John Wiley & Sons, New York.

I am hoping that Dr. Fischer and others will pursue the study of glaucoma as a local oedema until they shall be able to make clear to us, not that acidosis of a tissue will invite water into it, for this Fischer has abundantly demonstrated, but how the acidosis comes about. Some of us are young enough to take up this inquiry and help work out a satisfactory answer. Can it be due primarily to some abnormal condition of the circulation of the eye or is it brought about by the eating of some kind of food that favors the development of acidosis, or is the condition developed by some heretofore unknown state of the nervous system?

Another inquiry might be profitable. Does the oedema begin primarily in the ciliary body or simultaneously in the ciliary body and choroid, or does it begin primarily in the vitreous body? I am inclined to think that the ciliary body and the choroid become oedematous first of all, and that the collection of water within the eye is aggravated by the narrowing of the circumlental zone which results from the swollen condition of the ciliary body. The accumulation of water in the vitreous body must push forward the iris until its periphery closes, to a greater or less extent, the spaces of Fontana, thus still further aggravating the oedema.

I left Indianapolis determined to follow out the plan of treatment recommended by Dr. Fischer. My experience since returning home does not include a single case of acute glaucoma, but it includes one case of sub-acute glaucoma and three cases of chronic glaucoma. In each case the tension was promptly reduced, and in the case of sub-acute glaucoma, the vision, which was zero at the time of the first injection, within twenty-four hours was equal to 10-30. In two days the tension had increased again, and the vision was again at zero. A second injection was given and in twenty-four hours the vision was 10-20. In three days the pressure again increased and the vision dropped to zero. After the third injection his vision in twenty-four hours was up to 10-20, and remained practically the same for four days, and then pressure recurred. After the fourth injection the vision came up again, but not quite so high as it was after the second and third injections, and remained so only two days. I decided then to do an iridectomy, which was done just ten days ago, that is, just ten days prior to the writing of this paragraph. From the time of the operation to the present I have not repeated the treatment, but since the operation the vision has not, on any day, dropped to zero. Testing his vision to-

day I found it about 6-50. From the beginning of the Fischer treatment in this case I gave internally five to ten grains of carbonate of sodium, every three or four hours, following the advice of Dr. Fischer in a personal letter received from him.

One of the other three cases was totally blind from glaucoma, and had been for some years. She suffered a good deal of pain, especially in the left side of the top of the head, because of the intraocular pressure which could not be perfectly controlled by eserine. I gave the sub-conjunctival injection of the citrate of sodium as in the sub-acute case, which was promptly followed by a reduction of the tension, and a consequent relief of the pain, which has continued now for about one week. The second of the three chronic cases is a man who is totally blind in the left eye from glaucoma and secondary cataract, and his vision was but little better than 20-70 in the other eye. The nasal field is much diminished in size, and so is both the upper and the lower, the outer field being fairly good. I gave the sub-conjunctival injection only yesterday. On inspection today I find the tension is greatly reduced, that the iris has receded in proportion, and that his vision is 20-50. Except for the pain excited by the injection, the patient has been more comfortable than when using the eserine alone. In this case I expect to continue the eserine, but will be ready to repeat the sub-conjunctival injection as soon as the tension rises again. The last of the three cases is also one of chronic glaucoma, in which the vision of one eye is nothing, and the vision in the other is only that of light perception, sufficient to enable him to get about. He was suffering pain from the intraocular pressure, and for this was given the sub-conjunctival injection of citrate of sodium. In the first and third of these three cases the purpose is simply to relieve the pain by controlling the pressure, and in each of these two, the eserine will be continued.

I am anxiously awaiting the coming of some case of acute glaucoma, and in such a case I would unhesitatingly resort to the sub-conjunctival injections of the citrate of sodium and would be a little slower in doing an iridectomy in such a case than I was in doing it in the first case mentioned in this paper. I do not know that iridectomy can be entirely discarded, and certainly would do the operation in any case of an acute or sub-acute glaucoma that did not improve promptly under the Fischer treatment. The following is the method advised by Dr. Fischer and Dr. H. G. Thomas, an oculist of Oakland, Cal. (Dr. Fischer himself is not an oculist but a pathologist): The eye should be cocainized. The hypodermic syringe should be charged with a sterile solution of citrate of sodium, not weaker than 4 per cent nor stronger than 5 per cent. From five to fifteen drops of this solution should be injected beneath the conjunctiva, the needle entering just a little behind the corneo-scleral junction. The usual artificial oedema appears as the piston is driven home. The patient suffers some pain by the time the last drop has been thrown under the conjunctiva, and there is more or less pain for some hours after the injection. The oedema increases for the first few hours. It is not many hours after the injection until the patient is free from suffering. The injection should be repeated when there is evidence of a return of the intraocular pressure. According to the experience of Dr. Thomas injections may be made at intervals of two or three days, at first, and as the treatment progresses the interval may be prolonged. After a few weeks the following mixture may be made and injected with less pain to the patient and with the prospect of keeping up the good effects: One part of the 5 per cent solution of citrate of sodium and two parts of normal salt solution. Five to fifteen drops of this solution could be injected once every week or two, as might appear necessary.

Dr. Fischer advises that the carbonate of sodium, five to ten grain doses, should be

given internally every two or three hours. It is probable that the bicarbonate of sodium in the same dose would do as well. I can see no reason why eserine should not be conjoined with the Fischer treatment, nor would I hesitate in cases of acute and sub-acute glaucoma to do an iridectomy. In this connection I may say that the iridectomy is made much easier by the previous reduction of tension with the sub-conjunctival injection of the citrate of sodium. After the iridectomy has been done I believe that the Fischer treatment should be resorted to as soon as the wound has sufficiently healed, and I see no reason why the eserine should not also be used in these cases.

DISCUSSION.

Dr. Martin.—I heard this paper of Dr. Fischer's, and was very much impressed with it, but have not been fortunate or unfortunate enough since that time to see a case of glaucoma. Of course when a man advances a new theory which is plausible, and we are seeking for light, as we have for years in glaucoma, all of us are anxious to try it, but I cannot quite agree with Dr. Savage about postponing your iridectomy. I do not see why we should not do an iridectomy anyhow. So many cases of glaucoma are relieved by iridectomy that I do not see why we should not do it and adopt the Fischer treatment as well. Of course it will take time and effort to develop this theory, and though it sounds plausible and good, I don't think we would be justified in risking the damage that occurs to the eye, which is always materially lessened by an iridectomy. We should be very slow to abandon any procedure that has given such good results as has iridectomy in glaucoma.

Dr. Finegold.—I would like to say something more apropo of what Dr. Byrd said about the hemorrhage which sometimes accompanies the operation of iridectomy. I have had that experience once or twice myself, and conceived the idea that a too sudden evacuation of the anterior chamber was the principal cause of this unfortunate accident and that it might be avoided by simply incising along the anterior chamber very slowly. I use an angular keratome in this operation, inserting the instrument just sufficiently for the point to enter the anterior chamber, then withdraw the instrument and let the aquaeous escape drop by drop, instead of gushing out as it will when a complete incision is made.

Since I have been doing this, I have not had a choroidal hemorrhage complicating this operation.

Dr. Herron.—Dr. Savage's paper appeals to me in one respect. As a matter of fact, all of us have cases where we find an anesthetic is almost impossible. Such cases somtimes come to us. For instance, I had a case last year that I would gladly ave used Dr. Fischer's treatment. She had a case of colitis at the time, and the general physician said it was impossible to give her an anesthetic. She had acute glaucoma, with only light perception. Eserin had no effect on the pupil, and could not control it. She could not take the anesthetic, and there she lay suffering for several days. I could not give her an anesthetic, and could not operate on her, and had to let her return. I was sick when she came back to me. I referred her to him. That case might have been saved if this injection could have been done at that time. It would have been doing something until her physical condition improved and the inflammation subsided in that eye. Give the patient quiet. She said she would give up this eye if I could quiet that pain. It was a matter of impossibility to reduce the pain. I am glad that there is some remedy known now to the medical profession to reduce this tension, and this pain, and to quiet those eyes, and then make an iridectomy. I had several cases last year in which I would have used this treatment. I will be only too glad to try this treatment.

TONSILLECTOMY AS PERFORMED IN THE SERVICE OF DRS. DUPUY AND DePOORTER, CHARITY HOSPITAL, NEW ORLEANS*

By HOMER DUPUY, M.D.,
New Orleans, La.

While we are rapidly approaching unanimity relative to complete extirpation of the tonsil when indications call for its removal, the last word has not yet been said as to the manner of its removal. The ideal is total removal, leaving the capsule behind to protect the muscle tissue. We have all perhaps attempted this in selected cases with a fair measure of success, but as a routine procedure it is impracticable. That we are still striving to perfect our methods in tonsil extirpation has emboldened me to present to this gathering

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of co-workers from our Southland a complete expose of how we are removing tonsils in our service at the Charity Hospital.

I confess that while the method thus far is yielding satisfaction as to safety, rapidity, freedom from unusual bleeding, a smooth and clean wound, completeness and ultimate results, on the other hand I will not pretend to admit that this particular method is the last word in the operative technic of tonsillectomy. But it, at least, has the virtue of some originality, and it may present surgical and mechanical wrinkles that may appeal to some of the members of this section.

This contribution is based on 200 consecutive operations performed in our service during a period extending from May 1, 1910, to October, 1911. Our subjects varied from 3 to 30 years; average age was 9 years.

I have divided my subject-matter into (1) Anaesthesia, (2) Position, (3) Technic, (4) Operative and Postoperative Complications, (5) Ultimate Results.

Anaesthesia.—Acting on the belief that general anaesthesia not only is more humane, but particularly in children, is indispensable for thorough and deliberate work in the tonsillar region. In the 200 tonsillectomies performed, local anaesthesia was applied only once, and this was in an adult. Personally I prefer general anaesthesia, even in adults, for the reason that my method of tonsil removal is largely a blunt dissection, which is scarcely tolerated under local anaesthesia. Ether, in our experience, has proven the most satisfactory and the safest anesthetic. The open cone method is first applied with the patient in the usual recumbent position, when rather deep narcosis has been secured. A Whitehead mouth gag is used and the mouthpiece of the Caine-McDermott vaporized ether apparatus is placed within the mouth, resting on the inner cheek. The foot bellows are called into play and a stream of heated vaporized ether is, with gradually increasing force, thrown into the mouth. This deepens the narcosis and the patient is now elevated to the semi-recumbent position. This method of anaesthesia offers the following advantages: 1. It secures uninterrupted narcosis. 2. With practical abolition of the pharyngeal reflexes, the time of operation is materially shortened. 3. In experienced hands the etherization can be so timed that when the second tonsil has been removed the reflexes are just beginning to return. 4. We can so regulate the administration that the patient is sent from the operating room semi-conscious and with pharyngeal reflexes fully restored. 5. This method is so direct and the narcosis so quickly deepened at each movement of the bellows that the operator is in position to control the degree of anaesthesia required by every step of the operation by the behavior of the patent.

This method neither insures nor jeopardizes the welfare of the patient, the usual watchfulness and care, as in all operations about the throat under general anaesthesia, is also required.

The Caine-McDermott apparatus is the result of the combined ingenuity of Dr. Ansel M. Caine, instructor on anaesthesia, Tulane, and McDermott, the surgical instrument maker of New Orleans. It consists, essentially, of a chemically-heated coil. Sodium acetate being utilized, through which vaporized ether is driven by a foot bellows. This heated vapor further reaches the mouth by way of rubber tube connections.

While considering this important question of anaesthesia, I wish to credit Dr. Louis Levy, while he was interne at the Hotel Dieu, with having devised some four years ago a vaporized ether apparatus for our tonsil work. The apparatus, while crude, effectively answered its purpose and at least marked a step in the evolution of this method of anaesthesia. The Caine-McDermott apparatus is a very splendid mechanical result along this line and very effectively fills a want in a great variety of surgical procedures about the head. I deem it a privilege to have been the first one to operate

in the Charity Hospital under the ether administered by this particular method.

Position.—When fairly deep narcosis has been secured, the patient is slowly elevated to a semi-recumbent position at an angle of about forty-five (45) degrees. We claim the following advantages for this position: 1. Reduction of hemorrhage, due partly to gravitation itself and the better opportunities for intelligent assistance and skillful sponging. 2. Lessened possibility of post-operative ear complications. 3. Easier control of the flow of blood by occasionally inclining the patient's head to the side, causing the blood to gravitate over the inner cheek out of the side of the mouth. 4. Retention of our usual relationship between patient and operator, which greatly facilitates the operation. There is also the least disturbance of anatomical landmarks, which permits of more certain work in our dissection. In a five years' experience with this position nothing unuausl has occurred directly traceable to the position. Inspiration of blood has not occurred to any appreciable extent. Intelligent sponging must render such a possibility extremely remote. Nor was any difficulty in respiration observed which is, after all, likely to occur in any operative procedure in that region. Of course we are watchful. I should like to emphasize right here that in all nose and throat surgery, with its special and regional difficulties, the operator can and must control the administration of the anaesthesia. He is facing his patient and is, therefore, in close touch, visually and manually, with the entrance ways to the lower respiratory tracts. If he possesses the all-embracing eye of the ever-watchful surgeon, he is in the best position to see and to appreciate the slightest danger signals, and this need not distract him from the purely mechanical side of his work. The operation completed the position is not changed for several minutes, when the patient is gradually lowered.

Technic.—The tongue is depressed and the tonsil is grasped from above downwards, the forceps being pushed deeply into the mass of the tonsil, as much tonsil tissue as is possible is included within its grasp. The tonsil is then pulled away from the fossa so as to study its attachments and its contours. Without releasing the hold with the forceps the tonsil is then allowed to recede into its fossa. With pointed and curved long scissors a nick is made between the anterior pillar and the tonsil just at the middle of the tonsillar border of the anterior pillar, sufficiently deep to carry the cut behind the capsule. The blades of the scissors are gently separated with a gliding movement, which lengthens the cut from one-half to about an inch. Blunt scissors are then introduced in the original cut and the blades gently separated to further insure the separation between the tonsil and pillar at the primary cut. The aim of this first step is to immediately get behind the capsule. Forceps of this design (showing instrument), a modified hemo-static forceps, are then introduced, with blades closed into the original cut and gradually opened. If we are behind the capsule quite a large space presents itself, and through the separated blades the white glistening capsule and the round outlines of the tonsil show up distinctly in the field. By alternate opening and closing of the blades we gradually separate the tonsil within its capsule from its anterior, outer and upper attachments. The forceps, without being removed from the parts, are then carried backward in the same manner and the tonsil is separated from the posterior pillar from above downward. At this stage the tonsil is usually completely released from its surrounding parts, with the exception of its lower attachment, which is resected in the usual way by the cold snare. I wish to emphasize that during the whole procedure the forceps are kept in closest contact with the tonsil. We do our utmost to avoid the slightest injury to the muscle tissue surrounding the tonsillar fossa. In peeling out, as it were, the tonsil, very little force is to be applied. If we are behind the capsule the

tonsil is usually shelled out of its fossa quite readily. If there be unyielding attachments, and we seem to have found these occasionally in the supra-tonsillar and along the posterior pillar regions, a tonsil separator or blunt scissors are brought into requisition to break down the adhesion at this particular point. We again have recourse to the dissecting forceps to complete the separation of the tonsil from the posterior pillar.

From the first cut with the scissors to the dissection proper, the tonsil is not subjected to any undue traction. Our landmarks are constantly kept before us by frequently pulling out the tonsil from its fossa and then immediately replacing it before the dissection is resumed. The proper manipulation of the forceps as it severs the tonsillar attachments causes the tonsil to gradually protrude from the fossa, and by continuous sponging a clear field for inspection of the parts is obtained. By occasionally pulling out the tonsil and its already released portion, it is quite feasible to detect through the intervening space the presence and course of any unusually large blood vessel. The proper use of the forceps allows us to keep every step in the dissection within view, so that we are not working in the dark.

Operative and Post-Operative Complications.—Continuous sponging with a large sponge pressed forcibly into the fossa just after the excision, has usually proved effective in controlling the hemorrhage. In about four instances spurting vessels were ligated, the vessel being caught up with long hemostatic forceps. There were no primary or secondary hemorrhages. Every case is kept at least over night in the hospital to reduce the possibilities of accidents. As regards the reactions, with few exceptions all our cases showed a rise of temperature the evening of the operation, which varied from 99 degrees to 102 degrees. While there was usually a fall the next day, a few cases showed continued temperature for two or three days. There was severe local reaction in half a dozn cases expressed in edema of the vulva and marked dysphagia. It is noteworthy that we insist on making nitrate of silver applications 8 to 10 per cent solutions to the wound on the third day after the operation and continue the applications every other day for about a week. Our experience seems to show that such an application greatly reduces the local reaction, promotes the healthy repair of the parts, and reduces the possibility of undesirable adhesions.

Ultimate Results.—Despite obvious difficulties we have by appointments one week ago examined fifty-two cases out of the 200 operated in the Charity. The greater portion were operated on one year ago. We paid particular attention to the effect of tonsillectomy on (1) the voice, (2) hearing, (3) functional results.

There was no instance of unfavorable voice changes. Where the voice had, previous to operation, been thick and muffled, these features disappeared after the tonsillectomy. The hearing was normal in fifty cases and fair in two, who were deficient before operation.

In the functional results we considered the destruction of the posterior pillar, or its adherence to the pharyngeal wall; the partial destruction of the anterior pillar; cicatrices in the soft palate, and adherences between the anterior and posterior pillars. Any one of these is not a desirable result and, in fact, may cause interference with the functions of the soft palate and pillars in deglutition, in voice production, or in the ventilation of the middle ear through the eustachain tube.

These are pertinent questions and collected post-operative observations only can give a satisfactory answer. In a majority of our cases the results as to these particular features were good. In some instances the intervening space between the pillars was maintained, in others the pillars were symmetrically glued together along their whole length, but this latter result caused no interference in the free movements of the parts. In two cases there were stellate cicatrices, producing an ugly-

looking puckering at the meeting point of the pillars with the soft palate, but even this caused no apparent ill-effects. Our observations seem to prove that these cicatricial formations are due largely to want of proper post-operative treatment—the patient not reporting for the usual silver applications. Again, awkward surgery alone may explain some of the results.

In conclusion, I must acknowledge the invaluable cooperation of my associate, Dr. De Poorter, and our hospital assistant, Dr. C. A. Weiss, in the collection of data which made possible this contribution.

DISCUSSION.

A. C. Lewis, Memphis, Tenn.—In regard to the use of adrenalin, I have never depended upon it alone. Since its action is upon the muscle fibres in the blood-vessel walls, I think it better to first get rid of the serum outside of the vessels by puncture or scarification, and then apply the adrenalin at short intervals and as long as the case requires. A great deal can be accomplished in this way.

In many cases I have used everything I could think of that could possibly be beneficial, and consequently I never knew exactly where to place the credit for the good results obtained.

I have never had a death from edema of the glottis, which I attribute to my good fortune in getting hold of the cases before it was too late to save them. Intubation, I have never tried in these cases, and don't think I ever shall, for I don't like the idea of intubating an edematous larynx.

SYMPATHETIC OPHTHALMIA.*

By DR. U. S. BIRD,
Tampa, Fla.

This paper is restricted to one feature of sympathetic ophthalmia; is really a request for a discussion of this feature, such a discussion not having come under the writer's notice. There is nothing of special interest in the history of the case. In 1900 the patient's left eye was injured; two months later the right eye became inflamed; two months after this, four months after the receipt of injury, both eyes were quiet; the traumatic or exciting eye had vision which has remained about the same; the sympathizing eye was blind. At this time she was seen by the late Dr. Calhoun, who performed a neurectomy on the blind eye with apparent benefit to the seeing eye. He also advised removal of the blind eye in case it became inflamed, which it has since frequently done.

During the following ten years both eyes have been in the habit of inflaming and paining at every period for a few days. Also, at intervals of from six to twelve months, the blind eye was subject to independent inflammatory attacks lasting about five days, during which the seeing eye was not implicated. About ten years after the injury she experienced the first serious attack in the seeing eye, not associated with her period, causing her great anxiety. On this occasion I saw her in consultation at her home. She was suffering from a mild irido-cyclitis; T—1 V. not taken. A month later at my office her condition was as follows: Tn; V—5 cc and No. 3.00 near; fundus not visible. During the consultation the question was raised as to whether the presence of the blind eye endangered the traumatic seeing eye; a reversal of the original condition. It was a question of necessity, not of expediency. Dr. Calhoun had advised removal in case of trouble in the blind eye, which advice had not been followed. We were now confronted with the complication of trouble in the seeing eye. Was it due to or associated with the presence of the blind eye? There was no information at hand. I took the matter up with an opthalmological authority and he advised removal. I communicated this to the family and there the matter has rested.

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According to a late communication, during the nearly two years which have elapsed, there has been no appreciable change in the condition.

That length of time does not settle the question, but in the absence of more extended observation it leaves the burden of proof on those advising removal. At present the necessity of removal has not been demonstrated, and with this experience I would hesitate to advise removal in a similar case. I would appreciate profiting by others' experience in such cases.

OPERATIVE TREATMENT OF BENIGN NEW-GROWTHS OF THE LARNYX

By RICHMOND McKINNEY, A.M., M.D.,
Memphis, Tenn.
Professor of Diseases of the Nose, Throat, and Ear, University of Tennessee College of Medicine; Oto-Laryngologist to City Hospital; Laryngologist to Lucy Brinkley Hospital, etc.

The purpose of this short paper is merely to give a few details of laryngeal technic, and there is no desire on my part to enter into a discussion of the occurrence and pathology of the various benign new-growths of the larynx. It is sufficient to say that the commonest form of benign new-growth occurring in the larynx that we see in children is of the multiple soft papillomatous variety, and that the most frequent new-growth of this classification that we find in the adult is usually a single, mucous polypus. A traumatic form of benign new-growth occurring in voice-users, particularly vocalist, is the so-called "singers' node," which is nothing more nor less than an inflammatory thickening of the mucous membrane covering the involved cord.

There is a different technic involved in the removal of any of these three varieties of laryngeal growth, and oftentimes this operative treatment, which certainly is practically the only treatment that avails, is found difficult properly to execute.

Until recent years we have had to remove papillomata of the larynx either by the indirect method, the very thought of using which in the child presents a picture of instrumental difficulty, oftentimes impossible to accomplish, or else by the severe and radical method of laryngo-fissure. Then there is the well-known tendency of these growths to recur, necessitating repetition of these embarrassing and trying instrumental efforts, with an invariably frightened and nervous child upon whom to operate. These indirect operations were performed with cocaine anesthesia, and we had associated with the difficulty of the operative technic the danger of cocaine intoxication, concerning the occurrence of which in children we have had frequent reports in recent years. Apart from all other considerations, the difficulty of instrumental manipulation in the larynx of a young child, with the at times almost complete inaccessibility of some portions of the infantile larynx, has caused even the most skilled surgeons to feel that the indirect method of removing new-growths from the infantile larynx was not the accurate procedure that is desired by every operator. Frequently portions of the papillomata were left, furnishing a site favorable for the recurrence of the growths, and the danger of traumatism to other portions of the larynx was always present. There is also the constant danger in these cases of inducing inflammation of the lower air passages due to inspired blood or other irritating substances.

Since the introduction of Jackson's illuminated laryngeal speculum the technic of these laryngeal operations has been simplified. The disadvantages of the indirect method in the nervous child have been overcome by the ad-

vantages of the direct method with the patient under ether. With the use of this speculum the removal of papillomata from the infantile larynx has become a procedure of precision and comparative freedom from the danger of undesired traumatism. It is *par force* and through preference an operation done under a general anesthetic, with the child in the horizontal position. After the induction of anaesthesia the patient is pulled forward until the head drops over the edge of the table, the foot of the table being several inches lower than the head, and the larynx being straightened by the head being placed in the so-called "Boyce position." The illuminated speculum is introduced without the slide, the epiglottis elevated with strong pressure, and we have presented a brightly illuminated and clear field for operation. With long forceps the growths are removed piecemeal, hemorrhage and possible reflexes being done away with by frequent swabbing of the region with a mild solution of cocaine and adrenalin, 2 per cent cocaine, 1 to 5000 adrenalin. Thus we can rapidly, and at one seance, remove the entire mass, which, by the indirect method, perhaps would require several days or weeks of tedious manipulation to accomplish as much or less. I have used both of these methods frequently and would not at this time think of attempting the removal of papillomata in children by any but the direct method, the advantages of which are so obvious after one trial. One of the worst cases that I have ever operated upon was that of the little three-year-old daughter of an Arkansas physician, who had been wearing a tracheotomy tube for two years owing to the almost complete obstruction caused by laryngeal papillomata, and the hope that tracheotomy, by removing irritation from the larynx, would bring about the disappearance of the growth. This had not resulted, and with the child under ether, and by the direct method, I removed enough papillomata to fill the cavity of the palm of the hand. This could hardly have been done by the indirect method, for it would have required extreme patience and fortitude on the part of the child.

From observation and experience with various laryngeal specula, I am convinced that the Jackson speculum has great superiority for this work over any other form of speculum. With the slide removed, the field for instrumental manipulation is entirely free, and it is not necessary, as it is with the Kirstein speculum, for instance, to guide the instrument through the upper and closed portion of the speculum. This facilitates work, rendering sponging and torsion of the growths easier and more rapidly performed. Then with this speculum we are not bothered by the necessity for using either a head lamp, as with Kirstein's or Killian's speculum, nor are we bothered with the lamp and reflector, which it is necessary to use with Brunings' instrument. Removal of papillomata with the direct method is so much easier of application, and so less likely to injure the patient in any way, that even though the papillomata do recur, the operation is not approached with the dread that it is where the indirect method is used.

The removal of polypi—usually single—from the larynx of the adult can very readily be accomplished by the indirect method, although, of course, where this method is found difficult of application the direct method with the illuminated speculum can be used; but I have never found a laryngeal polypus in the adult which presented such difficulties in removal as to require sending the patient to the hospital and resorting to the direct method. My experience in this work has taught me that the main essential is to obtain complete local anaesthesia. If this is obtained, the delay occasioned by the necessity of having to educate the throat by manipulation is avoided, and the patient is gratified by having the growth removed in one or two sittings. In anaesthetizing the larynx I think it is a mistake to apply cocaine with a swab, for with this it is practically impossible to reach every portion of the larynx, and unless this is done

there will be reflexes remaining which will handicap the operator and perhaps result in failure to secure the growth. It is the experience of everyone who has attempted to remove laryngeal new growths, where the anaesthesia was not complete, to see the muscles of deglutition involuntarily contract, or to have spasmodic involuntary reflexes of the laryngeal muscles, thus interfering with the view of the larynx. As a preliminary step to anaesthesia of the larynx, the pharynx should be anaesthetized, and in doing this ten per cent solution of cocaine may be applied with a swab. Following this, cocaine of the same strength is sprayed into the larynx, the patient being instructed occasionally to phonate by emitting a prolonged "e." This throws the cords up into a position to be thoroughly cocainized. The solution should also be sprayed over the walls of the larynx, and, in fact, the entire larynx should be thus bathed. This spraying should be repeated two or three times, and at the expiration of a few minutes anaesthesia should be found complete, with all reflexes and sensation abolished. With this method of cocainization of the larynx there is neither the unfavorable annoyance accompanying the introduction of the cotton swab, nor do we fail to anaesthetize every portion of the larynx. For the purpose of removing laryngeal polypi I have found no form of laryngeal forceps so satisfactory as that of Moritz Schmidt, which possess the necessary qualities of being flexible, delicately made, so as not to take up too much room in the throat, thus obscuring vision, and at the same time it is sufficiently strong to permit the removal of the polypus by torsion, which is the procedure usually adopted for the removal of these growths. The most recent case of laryngeal polypus that I have had occasion to remove occurred in the throat of a prominent politician of Memphis, who had been hoarse for four or five months, and in whom I found a polypus about the size of a buckshot attached at the junction of the middle with the anterior third of the right vocal chord. This was removed in two sittings, with complete restoration of the vocal function immediately following.

The most difficult of the laryngeal benign new-growths to remove in my experience has been that already referred to as "singers' node." These growths are small and sessile, and, since they must be cut away, there is the greatly increased danger accompanying their removal of biting away a portion of the vocal cord and leaving a cicatrix as a result, which might impair the voice quality. As a rule, however, it would require considerable injury to the vocal cord to do much damage to the voice, and it would be only very awkward manipulation that would cause so much destruction of the normal tissue as to occasion this unfortunate result. Cocainization of the larynx is obtained in the same manner as for the removal of polypi, for the indirect method also is used here, and after complete anaesthesia is obtained a laryngeal forceps with a double curette, cutting from above downward, such as Cordes', is introduced and the growth carefully cut away.

In operative work within the larynx, as can well be said of all operations performed anywhere about the human body, Davy Crockett's maxim, "Be sure you are right, then go ahead," is particularly applicable. Without clear vision of the locality to be subjected to operation, the surgeon should refrain from blind groping, for his misguided efforts may result in the destruction of portions of the organ which are not involved in the pathological process, and which may occasion much future inconvenience. Of course, some operators possess decidedly better natural technic than others, but proficiency in operative work about the larynx depends in a large degree upon the methods used in the work.

Memphis Trust Building.

A PLEA FOR AN EARLIER DIAGNOSIS OF CANCER OF THE UTERUS.

By F. WEBB GRIFFITH, M.D.,
Late of the Gynecological Staff of Johns Hopkins Hospital.
Asheville, N. C.

From time immemorial there has been no disease which has so persistently baffled the medical profession and which has been regarded as so hopeless by the laity as malignant growths.

Considering the enormous amount of time which has been spent in the past decade in the search for the cause and specific treatment of cancer, our knowledge is indeed meager.

Because of our inability to cure moderately advanced cases of carcinoma and because of the morbid depression produced upon the patient, they have become a harvest-field for the quack.

In gynecological work cancer of the uterus so overshadows all other forms of malignancy that I have chosen it as the subject of this paper.

In Europe the medical profession, under the guidance of Winter and others, have, through the medium of the press and circulars, so impressed upon the women the importance of an early recognition of cancer of the womb that already the results are marvelous.

In this country, however, public opinion would be against any such method, and we must depend entirely upon the family physician.

The uterus is composed of two portions, the corpus or body and cervix or neck, and in the female economy these two portions have absolutely different functions to perform. The inner lining of both the corpus and the cervix is composed of a single layer of cylindrical epithelial cells. The cells in the corpus differ slightly from those in the cervix, but for practical purposes this single layer of cells extends from the top of the corpus to the external os of the cervix.

Now, extending from the external os of the cervix around the outer side of the cervix, and covering the vagina, are several layers of epithelium. Just as there are two kinds of epithelium in and around the uterus, so there are two kinds of carcinoma or cancer depending upon the origin. The one arising from the single layer of epithelium, and known as adeno-carcinoma, the other arising from the outer many-layered epithelium and known as squamous-celled carcinoma.

Thus we have adeno-carcinoma arising either from the inner lining of the cervix or from the inner lining of the body, whereas squamous-celled carcinoma practically always arises from the cervix, for there are no squamous or many-layered cells in the body of the uterus.

As to rapidity of growth, those arising from the inner layer of the cervix (the adeno-carcinomata of the cervix) are by far the most actively growing. The next in rapidity of growth are those arising from the outer wall of the cervix, the squamous-celled carcinomata. While the least rapidly growing are those arising from the inner lining of the body of the uterus, the adeno-carcinomata of the body.

These three types will be discussed more in detail later when we consider the symptoms.

The cause of cancer is unknown. Many attractive theories have been advanced to explain it, but as yet none have been proven.

The frequency with which a history of injury or chronic irritation is obtained in carcinomata of the breast, lips and other portions of the body would seem to indicate that trauma is an important etiological factor. Certainly it is that cancer of the cervix in a woman who has had neither children, miscarriages or instrumental manipulations of the uterus, is un-

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common. One authority states that only 3 per cent of the cases of carcinomata of cervix had never been pregnant, while that 42 per cent of the cases of carcinomata of the body of the uterus were in nullipara. So that, whatever may be said of trauma as an etiological factor of cancer elsewhere in the body, experience shows that it is of great importance in cancer of the cervix, while in the body of the uterus it seems to have no significance.

The belief that heredity is the cause of cancer is deeply rooted in the minds of the laity. In the past few years several women without any symptoms have come to be to be examined, fearing that they might have cancer of the womb because their mother or sister had died of it.

There are on record many families in which several members have died of the same kind of malignant trouble at or about the same age. This does not by any means prove hereditary influence, for when we consider how common are malignant growths, it would be strange if such occasional coincidences did not occur.

Parasites, embryonic misplacements, "break in the continunity of cells," are but theories to account for the origin of cancer and beyond the scope of this paper.

Cancer of the uterine cervix is a disease of middle adult life. It is extremely rare in youth and very infrequent in old age. Between the ages of thirty and fifty years it is common, being most apt to occur at or about the menopause.

Cancer of the body of the uterus tends to occur a little later in life, being most common between forty and sixty years of age.

Since cancer of the cervix, when moderately advanced, offers such little hope of cure, it behooves the specialist to learn to recognize it, and the general practitioner to at least suspect it in its incipiency.

The two great symptoms of cancer of the cervix and danger signals to the woman near the menopause, are an unusual bleeding and discharge. Bleeding from any other portion of the body than the uterus is always to a certain degree alarming, both to the patient and to the physician, yet uterine bleeding appearing each month as a menstrual flow seems to lose its power to impress us.

Any abnormal bleeding whatsoever in a woman over thirty-five years of age demands investigation. The bleeding of an early cancer may be intermenstrual, that is, occurring between the menstrual periods; it may be a profuse hemorrhage or it may be only enough to soil the clothing. On the other hand, the abnormal bleeding may be in the form of an increased menstruation. A woman who has previously menstruated regularly for three to four days will rather suddenly begin to menstruate for six to seven days, or she may menstruate her usual number of days, but in that time lose more blood than formerly.

As a rule, a woman with what seems to her such slight menstrual disturbances, will not consult a physician, and if she does the physician will often pass it by lightly, assuring her that everything will soon be all right. We all recognize the prejudice a woman has against examination, and the difficulties and inconveniences of making pelvic examinations, but when we consider the hundreds of women who are pouring annually into the hospitals only to receive the dreaded verdict, "hopelessly inoperable," it makes us realize that it is better to examine a score of women unnecessarily than to let one single operable case escape.

Another sad delusion which exists so frequently in the minds of women, is that the appearance of bleeding after the menopause is but the re-establishment of menstruation. Also that increased bleeding between the ages of forty and forty-five is one of the phenomena of the "change of life."

The menopause may be heralded by a decrease in the menstrual flow, but never by an increase. Any increased or unusual bleeding around the menopause indicates that something is wrong.

I remember so vividly a woman, forty-seven

years old, who told me that she believed she was getting young again, because her periods which had ceased a few years previously, were returning. Poor woman, she did not realize that she was the victim of an extensive cancer and had only a few months to live.

Let me give you briefly the history of one of our cases picked at random from the records of the Johns Hopkins Hospital, which shows the hopeless condition in which most of the cases of cancer of the cervix are received at this institution. Mrs. B. L., aged 38, white, admitted with the following history: Menstruation began at 13 years of age, always regular, lasting five to six days, with practically no dysmenorrhea. For the last four or five years the flow has been increasing in amount but not in duration. (Notice that for over four years the flow had been increasing.) Patient has been married twenty-three years and had had five children and two miscarriages. Always a strong woman, with never a day's sickness except at child-birth. Her illness began sixteen months before admission, when, while doing some heavy lifting, she became unwell. Her flow lasted five weeks, but she paid no especial attention to it. It finally changed to a sero-sanguinous discharge, which persisted to time of admission, with, however, three severe hemorrhages in the meantime. Soon after the onset her doctor told her she had a tumor and that her womb should be scraped, which advice she followed. Her doctor, whoever he was, certainly deserves credit for urging an early curettage, but unfortunately a fatal error was made, for the scrapings were not examined microscopically, or else were examined by someone untrained in gynecological pathology, for the malignant nature was overlooked.

After the curettage the patient became markedly worse, and on admission to the hospital was suffering a great deal of pain, was weak and had lost about sixty-five pounds in weight.

The following note was dictated on her admission to the hospital, sixteen months after the appearance of marked and conspicuous symptoms and over four years after the beginning of an increased menstrual flow: "External genitalia normally developed. Outlet parous and relaxed. Very foul-smelling bloody seropurelent discharge. Inspection showed vault of vagina occupied by fungating mass. Palpation reveals cervix entirely replaced by spongy, friable, fungating mass extending up into body of uterus and over vaginal vault above and to left to within three centimeters of outlet, on right not quite so far. Mass infiltrates surrounding tissues deeply, is quite immovable and fixed on left and slight movement possible on right. Rectal examination gives intimate connection between mass and rectum.

Diagnosis: "Carcinoma cervicis uteri. Condition clearly inoperable."

Surprising as it may seem to you, that is about the condition in which are over half the patients with cancer of the cervix who apply for admission to this hospital.

Contrast the above history with one of our very early cases. Mrs. S. C., aged 48, white, admitted June, 1908. Menstruation regular every four weeks until September, 1907, when she stopped for five months, that is, until February, 1908, when she menstruated her usual length of time. Then she did not menstruate again until May, when she had two periods which were very profuse. There you see in May, 1908, was the first actual increase of bleeding. She consulted her physician, who, although he could find nothing wrong on examination, realized fully the danger of allowing any increased bleeding in a woman 48 years old to go uninvestigated, sent her into the hospital immediately for the advice of a specialist.

Under an anaesthetic the following condition was found: Cervix quite soft. There was a small amount of bleeding coming from the cervix, but there was no evidence of any induration or ulceration or loss of substance in the cervix to suggest a malignant growth.

The uterus was in anteposition, about normal size and symmetrical. No tumors could be palpated at any point. The lateral structures were normal.

The uterus was curetted for diagnosis, and the uterine scrapings found to be definitely carcinomatous, but very early. The uterus was then removed and the growth found to be localized. The patient has since remained well and we have every reason to believe she will continue so.

This case well illustrates what I wish to emphasize, that although the physician or specialist may see or feel absolutely nothing abnormal, yet any increased bleeding or discharge near the menopause demands the most thorough investigation. This patient undoubtedly owes her life to her family physician, and this one case alone would abundantly compensate him for any number of other suspicious cases whom he may have submitted to examination or even curettage, unnecessarily.

Cancer of the womb, although most commonly of cervical origin, does in about 20 per cent of the cases arise from the fundus or body. Unfortunately this relative percentage is so small, for cancer of the fundus offers very much better immediate and ultimate prognosis than cancer of the cervix. For that reason operation several months or even a year after the onset of symptoms may offer a reasonable hope of cure, while a cervical carcinoma of that duration would be practically hopeless. Because of the slow growth of cancer of the body, of the uterus, the family physician should be the more eager to get it early, within the first few weeks, for then it offers an excellent chance for an absolute cure.

Just as in cancer of the cervix, so in cancer of the fundus, unusual bleeding and unusual discharge are the two important early symptoms which should be indelibly impressed on the mind of the physician. And as far as the general practitioner is concerned, these two symptoms are all he need bother about so long as he attaches to them the importance they deserve. For when the other manifestations, such as severe pain of bladder or rectal involvement occurs, it is too late.

There are certain benign conditions which may simulate cancer of the womb and mislead the physician. If he will consider every suspicious cause malignant until proven otherwise, he will frequently err, 'tis true, but his error will always be on the safe side and not at the expense of a human life.

What are some of these conditions which may deceive us? First we will consider the so-called ulceration of the neck of the womb.

Only recently Dr. Howard Kelly stated that in his whole experience he had seldom seen a true ulceration of the cervix, that is, where there was actual loss of substance, which was not malignant, except in prolapse where the cervix was irritated by clothing, thighs or some external agent. In those cases of complete prolapse, clothing, irritation by rubbing against the thighs, etc., cause slight abrasion in the cervical mucosa, which become infected, with a resultant loss of tissue.

Although these cases are usually fairly easy to differentiate from cancer, yet the constant irritation and trauma seem to be exciting or predisposing factors to the formation of a malignant growth, and for that reason they should receive proper treatment.

If an authority like Kelly states that a true benign ulceration of the cervix is so extremely rare, when, then, is the condition which the general practitioner so frequently diagnoses as ulceration of the neck of the womb?

You recall that the lining of the cervical canal is composed of a single layer of epithelial cells, while the outer or vaginal portion of the cervix is covered by several layers. Now, beneath the epithelium are numerous blood-vessels, which, shinnig through the single layer of cells, gives to it a "beefy-red" appearance. On the vaginal portion of the cervix, that is, outside of the external os, where there are many layers of cells, the vessels do not

shine through so distinctly, but give rather a pinkish-blue appearance.

At the time of labor it is quite common to get a bilateral laceration of the cervix and consequent eversion or turning out of the anterior and posterior lips. So that when the physician looks at the cervix he sees around the external os a rim about ¼ to ½ inch in diameter of beefy, angry appearance, which is, in reality, nothing but the normal cervical lining exposed to view owing to the cervical laceration, and is not an ulceration or loss of tissue.

Once in a while we find a somewhat similar condition in a nullipara, where there has been no laceration or eversion of the cervix, but where the junction between the single layer of cervical epithelium and the many-layered vaginal epithelium is not as normally at the external os, but farther out on the vaginal portion of the cervix. This is a congenital anomaly and relatively infrequent.

If a physician applies some caustic to this "supposed ulceration" there will be a proliferation of cells due to the irritation, and consequently the vessels not showing through so distinctly, this area takes on the appearance of the rest of the vagina and the "ulceration" is said to be healed. After a few weeks or months these proliferated cells will desquamate and the ulceration is said to have recurred, and the caustic is again applied. Often women with vague pelvic complaints will be subjected to repeated cauterization of the cervix on account of this so-called "ulceration," when, as a matter of fact, it seldom causes symptoms and should not have caustic applications.

I have digressed a little by considering in detail eversion of the cervix, but it is because this subject of so-called cervical ulceration is universally misunderstood by the general practitioner, and because in many cases it is of great vaue in differential diagnosis.

When a woman near the menopause presents what seems to be an ordinary cervical erosion, but has also an unusual discharge or bleeding, the condition should by all means be considered malignant until proven otherwise.

The second benign condition which simulates malignancy is myoma, for one of the symptoms of a uterine myoma which involves the endometrium, is bleeding. If now a woman near the menopause has such a myomatous nodule, yet too small to be felt by bimanual examination, she will have bleeding of obscure origin.

A polypus projecting into the uterine cavity will likewise give bleeding, the cause of which cannot be detected by the ordinary examination.

A threatened abortion before the second month in a woman near the menopause is sometimes very difficult to distinguish from an early malignancy. If the presumptive signs of pregnancy, such as changes in the breasts, blueing of the vagina, softening of the cervix, etc., are present, of course the diagnosis is simple. But if, as so often happens, these signs are vague or even absent, and especially if leucorrhea, which is so common in a pregnant woman, is present, you have three of the characteristics of a malignant growth of the body of the uterus, bleeding, leucorrhea and an enlarged uterus.

The fifth benign condition simulating cancer is the retention of a portion of the membranes after an abortion, when the patient is near the menopause.

As you know, if after an abortion there remains in the uterine cavity a small piece of the membranes, a persistent bleeding will be kept up until the offending tissue either disintergrates and is cast off or else is curetted away.

When there is a clear history of early pregnancy and abortion, the diagnosis of retained membranes offers no difficulty.

The cases which are confusing will come with a history somewhat like this: A woman between the ages of 40 and 45 misses a menstrual period, and she does not know whether it is due to an early pregnancy or to "change

of life." While doing some heavy lifting or unusual exertion, she will have a profuse bleeding lasting from a few hours to a day or so and followed by a blood-tinged discharge for several weeks, when she will finally decide to consult a physician. The question then arises, has she had an incomplete abortion at about the fourth or fifth week, or has she an early cancer?

Without a curettage of the uterus it is impossible to make an absolute diagnosis. Fortunately, however, if it be retained membranes, curettage is the treatment indicated, whereas if it be cancer the same procedure is necessary for diagnosis.

There are other rarer benign conditions which might be mistaken for an early cancer of the womb, but I will not tire you by a recital of rareties which the general practitioner seldom encounters.

Thus we have, on the one hand, a large group of pathological processes, some of which would, in the course of time, tend to correct themselves, but we have, on the other hand, with practically the same symptoms, cancer of the womb, where delay means death.

If any of us should treat a case of suspected diphtheria for a week without taking cultures from the throat to determine its nature, or administering antitoxin, and the patient should die, we could be held responsible for criminal neglect. Yet we allow a woman with bleeding and discharge suspicious of cancer, to go week after week and month after month until anaemic from the loss of blood and cachectic from the toxins of cancer, she is beyond hope.

What, then, is the course why the physician should follow in these suspected cases?

If he has had training in aseptic technique, he may dilate the cervix and curette the uterine cavity, and send the curettings preserved in alcohol or 10 per cent formalin, to a pathologist for diagnosis.

If there be a malignant growth, it is worth infinitely many times the trouble and cost to catch it early, and if it should not be malignant, it will be a great comfort to be able to reassure the patient.

If the patient is poor and cannot afford to pay a specialist, there is no gynecologist worthy of the name who would not gladly treat her gratis.

So that it simply resolves itself into whether the physician and patient are willing to put themselves to the slight trouble and inconvenience of seeing a specialist, and surely that could be no argument for delay when a human life is at stake.

I firmly believe that this generation will witness the discovery of the cause of cancer and possibly also its cure in moderately advanced cases. Whether the treatment then will be with drugs, serum or scalpel, we can only surmise, but with our present knowledge mighty little can be done toward a cure unless gotten at its onset.

78 *Patton Avenue.*

A VITALLY IMPORTANT DISTINCTION.

In the *Therapeutic Gazette* of January 15, 1912, is a thoughtful article suggested by expressions in the *New York Medical Journal.* The following brief abstract is pregnant with important facts demanding the thoughtful consideration of every conscientious physician:

As is well known, there are three important vascular areas which are not controlled, or only very weakly controlled, by vasoconstrictor nerves, the brain, lungs, and heart. Adrenalin has little, if any, constricting action upon the vessels of these organs; it is said to be almost useless in operations on the brain. The vessels of these areas are, however, contracted by pituitary extract. After a very brief period of stimulation the heart is weakened by pituitary extract; this effect seems to be due to the constriction of the coronary vessels. The weakening of the heart from pituitary extract causes a fall of pressure in the pulmonary circuit; the general vaso-constriction causes a rise in systemic pressure which counteracts the tendency to anemia of the medullary centers which results from cardiac depressants. Wiggers (*Archives of Internal Medicine,* July 15, 1911), believes that this combination of actions peculiarly adapts the pituitary extract for use in hemoptysis. The fact that adrenalin, through its stimulating action on the heart, increases the pressure in the pulmonary circuit would contraindicate its use in certain cases of pulmonary hemorrhage.

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Next Meeting Jacksonville, Fla., November 12, 13, 14, 1912.

The Special Train to Atlantic City

During a recent visit to several State Associations in the South our Editor in Chief conferred with many doctors who are members of the Southern Medical Association concerning the proposed special train to Atlantic City, on the occasion of the meeting of the American Medical Association at that place on the 12th of next June. He found the sentiment almost unanimous in favor of the excursion. The indications point to two trains of Pullmans, one along coast lines, the other along the inland route, by way of Nashville, Cincinnati, etc., both ways leading through some of the most magnificent scenery on the continent. Railroad officials are now studying the situation, and all posible information should be placed at their disposal without delay.

Physicians intending to make the trip, with or without their families, should at once communicate with this office, stating fully their intentions and desires, and we will try to afford them all the information necessary.

Those who have already traversed the routes mentioned will agree with the writer that although the professional and scientific benefits that should accrue to every participant in this excursion will be of untold benefit to him, yet the item that will give him the most pleasure or the longest time will be the splendid picture gallery of magnificent scenes that are indelibly drawn upon the canvas of memory as the traveler sweeps swiftly from one view to another while daylight lasts. Papers will be read and forgotten, theories will be accepted and rejected, celebrities will come and go, but the remembrance of the superb scenery of every description witnessed along the road will outlast them all. They constitute in themselves a liberal education.

The Reason Why Doctors Should Endorse the Findings of the A. M. A. Council

Do even the most reverent among educated, intelligent Christians now believe that the earth and the fulness thereof was created in 144 hours, and that the human race is less than 6,000 years old, because the Bible figures it so? Or the God who is love sent wild bears out of the woods to mangle and destroy a lot of frolicsome children, just because they laughed and yelled at a baldheaded old man who passed them at their play? Or many other irrelevant, poetical lessons embalmed between the covers of that Book of Books?

Not so; yet they know and acknowledge that upon the laws it formulates are based the legal systems of all civilized nations; that its historical statements sustain or condemn all recorded history; and that all codes of morality spring from the tables of stone, all civilizing and humanizing impulses are sustained by the example and precepts of One who was the culmination of all scripture.

The pen that wrote the sacred books was held by human fingers, but the brain that controlled them was guided by the Source of all intelligence. Suppose that some of the great truths originally inspired *have* become dimmed and distorted by the human hands that have copied and recopied them for thousands of years. Surely there is still light enough for our guidance, and that which is dubious had better be let alone.

The foregoing reflections are inspired by expressions in certain medical journals which betray an unfriendly feeling towards the A. M. A. Council on Chemistry and Pharmacy, and to the Journal of the Association.

Frequently sneering allusions are indulged in at the expense of the fallibility of the judgments published by the Council.

Of course we are not so irreverent as to compare those judgments with the rules and guide for our conduct laid down in the Bible as any way similar in authority. We simply desire to emphasize the truth that *each in its own way is the highest available authority*. If we refuse to be guided by them only confusion and anarchy could prevail in their relative realms. Both authorities are inspired.

The source of one inspiration it is unnecessary to state. The other is inspired by a sincere desire to guard physicians against committing the errors of prescribing useless or deceptive preparations on the one hand, or on the other such medicines as are calculated by their names or the literature surrounding their containers to encourage self-treatment by the laity. "To err is human," and necessarily the Council must have made some mistakes among the hundreds of verdicts it has pronounced.

Therefore we repeat, surely there is still light enough for our guidance, and, as in the other case, that which is dubious had better be et alone.

Pray do not understand the Journal as condemning all proprietary preparations. There are a great many useful, even indispensable medicines, whose manufacture is protected by trademark names. Several of them are honorable advertisers in the pages of this Journal, and are reliable therapeutic agents according to their claims. We would protect them as well as doctors and patients against the unfounded boasts of the unethical manufacturer.

Dr. Reed's Mistake

There are always reasons why a prominent man in any walk or profession should be careful what he says for publication, especially if, on account of his official position, he is supposed to represent a great profession.

Doctors everywhere devote their lives to the relief of suffering humanity, and no element of danger to themselves or their fami-

lies is ever allowed to interfere with their performance of duty. Yet it is an amazing fact that there is a widespread spirit of hostility to the profession so intense and so vicious in character that it seizes upon every chance circumstance to vilify and blacken our reputation, either as a profession or as individuals. There is also a horde of quack enterprises and a swarm of fake medical systems always ready to join in the hue and cry. Consequently, when a man like Dr. Charles A. L. Reed, ex-President of the American Medical Association, Chairman of the National Committee on Legislation, etc., etc., writes for a lay publication a long article detailing the circumstances of a corrupt practice, of which very few physicians compared with the whole number have been guilty, and treats the matter in the intemperate fashion customary in political appeals to the great unwashed, then, indeed, does he cast discretion to the winds, and, without any valid excuse, ally himself with those who are likened to evil birds that foul their own nests. We have no doubt of Dr. Reed's good intentions, but his recent article in Pearson's Magazine, entitled "The Farce of Medical Ethics," is a most egregious blunder—Oh, that mine enemy would write a book," quoth the evil doer; and he wrote to the e. d.'s delectation.

See how the faith-doctors crow, the osteopaths jibe, and all the fakirs rejoice! But it is the advertising quacks who welcome his words as seeds that shall yield for them a golden harvest. An illustration of this fact appeared in the Sunday papers of Mobile, and probably of other cities, on the 6th of April. An advertisement by a quack concern, the Electro Radio Company, occupying four columns of expensive space, headed by black letters three-quarters of an inch high, warns the reader:

"ARE WE BEING SCARED INTO OPERATIONS AND SOLD TO THE HIGHEST BIDDER TO BE SLAUGHTERED BY PHYSICIANS AT SO MUCH A HEAD, BECAUSE THEY WANT THE MONEY? IF YOUR LIFE IS WORTH TEN CENTS TO YOU, YOU BETTER READ THIS. CONFESSIONS BY DR. CHAS. A. L. REED, A.M., M.D."

The advertisement details the eminence of Dr. Reed and quotes the sensational introduction written by the editor of Pearson's for the doctor's article, the theme of which is fee-splitting, and no ethical physician can object to any denunciation of that infamous practice. The trouble is that by writing this subject for a popular magazine, and in a sensational manner, garnished with lugubrious instances, Dr. Reed seems to be confessing despair of seeing the corrupt practice corrected by the profession itself, and to appeal to the mob law of an excited public opinion for help to stamp it out.

A moment's thought should have taught him that only evil could come from such a step. It is not at all beyond the bounds of probability that the use made of his article by advertising quacks will lead thousands of impressionable people to turn from some safe and standard operation which is their only hope for life and surrender to the fatal maw of quackery. In a word, the indiscreet utterances of Dr. Reed have, perhaps, done more harm to the reputation of the medical profession than has thus far been accomplished by the evil of which he complains. The fact is that fee-splitting is a very uncommon thing in most parts of the country. Here in the South it is almost unknown, and when it does occur here it is perpetrated by some of the few black sheep found in every family or profession. Perhaps in some of the great cities there may be, just at present, an unusual prevalence of such unethical conduct, but, like other epidemics, it will soon subside, and the proper place for treating it is in the family home, and not in the public hospitals of misinformed popular opinion. Our societies and associations are fully competent to deal with the matter successfully—in fact, are already

doing so. If the article was published in a standard medical journal or read before a medical society, it would not have been so mischievous, in spite of the unnecessary violence and unprofessional tone thereof. Appended to this editorial is an account of the transactions of the Mobile County Medical Society at a recent meeting, showing its attitude toward fee-splitting.

Such action as that taken by Dr. Reed will tend to spread the evil instead of suppressing it, for the young, the thoughtless, the tempted, may reason that if so many of the men "higher up" are doing it, they, too, might as well receive the benefits of a practice which, though morally dishonest, is not in violation of any laws of the land.

Perhaps Dr. Reed has so long attended only to the larger affairs of medicine in his various official capacities that he has forgotten the persistent, irresistible pressure a well-organized county medical society can exert upon recalcitrant members.

That is the place where individual cases may best be dealt with. There is no danger of their going unnoticed if detected, and the services of a newspaper reporter are not required to aid in administering the discipline.

Neither in dealing with fee-splitting from a general point of view do we find any place for the public press. The medical journals are quite capable of dealing with it, and are already denouncing it in terms sharp enough to pierce the hide of the most insensate. The public press is the palladium of liberty, all right, but, so to speak, we do not want the general government to interfere with our police regulations.

This journal has not been slow to draw the sword against fee-splitting, and will continue until the practice disappears. Below we give a brief account of the meeting mentioned above:

"The Mobile Medical County Society recently spent a very profitable evening discussing the subject of fee-splitting. Dr. W. T. Henderson read a paper entitled "The Yellow Peril in Medicine," in which he called attention to the growing tendency to commercialize the profession of medicine and surgery, with particular reference to the new evil of division of fees by the specialists and general practitioners. He urged the Society to fix a penalty for fee-splitting, and at the conclusion of the discussion a resolution was unanimously adopted making the division of fees in any form an offense punishable by expulsion from the Society."

The sentiment against this new form of graft was strong and unanimous, and if any physician within the bounds of Mobile County who heard the sentiment expressed were now to have such a temptation dangled before his eyes, he would be apt to look the other way.

The Southern Sociological Congress

No one who cares for the welfare of the South and its people can fail to realize the great importance of such a conference as it is prepared to hold under the above title. No other people ever before had to face a problem of such vital importance to themselves and their posterity. The brightest minds, the most profound intellects have failed utterly in their attempts to solve it.

Wendell Phillips, Henry Ward Beecher and other lights of a vanished generation offered their long-range panaceas, only to be met by demonstrations of impossibility or indignant repulsion.

One wonders why those most deeply interested have not before now gotten together in conference over this matter and sought for some key to the puzzle.

The proposed Southern Sociological Congress seems to offer a hope for some sane and practical conclusions upon which our plans for future efforts may be based. The problem is many-sided. One of its aspects most vitally important to the South is the effect upon public health of an ignorance and recklessness in matters of hygiene and sanitation that so often characterizes one class of its population, often almost equal in numbers to the more enlightened citizens.

The general moral, mental, physical and business well-being is jeopardized by present

conditions. The effort to evolve a wise, just and stable basis for securing better means of controlling public health conditions regardless of class should not be relaxed for a single day. The power of organization for evil is not to be forgotten, nor the fact that reckless fanaticism is formidable. To fortify conditions against such misfortunes, to seek the surest and safest road to the sanitation, improvement and happiness of all the people, to point the way and take the first steps—these are what the world expects of the Southern Sociological Congress, and not health matters only. The list of subjects on the subjoined program and the names of the men who are to render it promise sure fulfillment of these expectations:

PROGRAM
of the
CONFERENCE ON PUBLIC HEALTH OF THE SOUTHERN SOCIOLOGICAL CONGRESS

To be held on the afternoons of May 7 and 8.

May 7, 2:30 p.m.

1. "Communicable Disease in Its Larger Aspect," Dr. W. S. Rankin, Secretary North Carolina State Board of Health, Raleigh, N. C.
2. "Development of State Medicine in the South as Indicated by the Public Health Appropriations," Dr. H. F. Harris, Secretary Georgia State Board of Health, Atlanta, Ga.
3. "Vital Statistics in the South," Dr. Ennion G. Williams, Secretary Virginia State Board of Health, Richmond, Va.
4. "Cost and Value of Public Health Exhibits," Dr. Oscar Dowling, President Louisiana State Board of Health, Shreveport, La.
5. "The Negro and Public Health," Dr. Seale Harris, Mobile, Ala.

May 8, 2:30 p.m.

6. "The Effect of Hookworm Disease on Death Rates," A. T. McCormack, Asst. Secretary Kentucky State Board of Health, Bowling Green, Ky.
7. "The Typhoid Fever Problem of the South," Dr. Earnest C. Levy, Health Officer, Richmond, Va.
8. "The Tuberculosis Dispensary," Col. J. L. Ludlow, Member N. C. State Board of Health, Winston-Salem, N. C.
9. "The No-Quarantine Management of Smallpox," Dr. Joseph Y. Porter, Secretary Florida State Board of Health, Jacksonville, Fla.

Autotherapy

The above might be accepted as a euphemism for homeopathy, but it is not so intended. Indeed, it is doubtful whether Hahnemann would acknowledge that the practice described as autotherapy is a legitimate conclusion to his celebrated theory of *similia similibus curantur*.

Dr. Charles H. Duncan, of New York, publishes in the Medical Record of March 30 an article wherein he claims to cure various septic conditions by administering the crude, autogenous pus by the mouth. He says: "The writer has cured many of the most pronounced cases of sepsis by this method of giving the crude, autogenous pus by the mouth. He has cured puerperal sepsis, septic abortions, septic endometritis, furuncles, abscesses, pustular acne, some forms of eczema, etc., and sees no reason why a skilled autotherapeutist may not cure very many extra-alimentary and extra-pulmonary diseases in a similar manner."

Dr. Duncan believes apparently that what will cure a disease will also prevent its being contracted. He says: "Every patient suffering with gonorrheal urethritis carries the cure for it with him in the discharge." Although he acknowledges the shocking character of this suggestion to the sensibilities, yet he argues, with unconscious humor, that if men and women will expose themselves to gonorrhoea they are not in a position to object to any cure that may be suggested, and that this treatment is no worse than the disease itself. He considers this method in line with the modern practice of placing natural vaccines in healthy tissues. He says gonorrhoea is not contagious through the mouth. He reminds us that, though we always warn such patients to keep their hands away from their eyes, we never warn them to keep them away from the mouth. "Gonorrhoea appears to be no more infectious on the *unbroken* mucous membrane of the mouth than the staphylococcus and streptococcus." The article of Dr. Duncan is too long and excursive for further extract. Suffice it to say that he recommends this treatment for the prevention as well as for the cure, and gives ten long, and to him conclusive, reasons why "the autotherapeutic method of curing disease is more curative, less dan-

gerous, better, cheaper and more convenient than opsonotherapy or the method of Wright and Douglas." Though worth reading, we cannot spare space for their reproduction.

Rabies Examinations in Alabama

The President of the Medical Association of the State of Alabama, Dr. Lewis C. Morris, of Birmingham, has issued a circular letter in which several interesting topics are broached. One is the work done by the Association Laboratory in Montgomery in examining the brains of dogs suspected of infection with rabies. Up to the 26th of December, 1911, 1,414 heads had been examined, the work beginning in October, 1908, and constantly increasing.

It is hard to estimate the immense benefit conferred upon physicians and citizens of Alabama by this one labor of the association. If it had done nothing else than diagnose and successfully treat cases of impending hydrophobia all over the state, this alone would justify all money so far spent in maintaining the organization; but this is only a drop in the bucket—"a surface indication."

Causes of Appendicitis

Dr. G. K. Dickinson, surgeon to Christ Hospital and the City Hospital and consulting surgeon to Bayonne City Hospital, New Jersey, believes that the excessive use of red meats and their decomposition in the intestines is one fertile cause of appendicitis. He reminds his hearers that "man is the *only animal* who makes eating a pleasure, who gormandizes and overfills the intestinal tract with high proteids, and who eats more than can be digested, the undigested portions proceeding to fermentation." Also that man is the only animal who has appendicitis. We think that, to use a colloquial phrase, Dr. Dickinson has another guess coming. True, it is not easy to cite examples of indigestion among meat-eating animals, nor yet in the inhabitants of the thrifty pig pen, but to suppose that meat-eating animals stop gorging as soon as the pangs of hunger are appeased, or that the prize pig eats from necessity, and not for pleasure, is putting it pretty strong. The writer's memory of comparative anatomy fails to inform him whether jackals, tigers and hogs have appendices, but if they are blessed with such unnecessary fifth wheels they certainly affect dietaries the doctor says are favorable to the development of appendicitis. At any rate, in this era of high prices the red-meat-appendicitis theory tends to economy.

The Spirochetes in the Heart

That was a rather strange condition discovered by Warthin and Snyder and described in the A. M. A. Journal of March 9, where the spirochetes were found in enormous numbers in the heart muscle of an infant that died at the age of two months of congenital syphilis, yet no spirochetes could be discovered in the tissues of any other internal organ. The localization of the spirochetes in the heart, to the exclusion of any other internal organ, is rather unexpected, since the lungs, spleen and liver are generally the first to be interrogated by pathologists.

A second case, a syphilitic infant dying on the eighth day, showed the same relative conditions of the internal organs. The mother showed no signs of syphilis, nor did the placenta, but the child had snuffles and a papular eruption.

New and Non-Official Remedies, 1912

Under the above title the Council on Pharmacy and Chemistry appointed by the American Medical Association has published a book that ought to be on the desk of every doctor. It gives a list and brief description of all the proprietary medicines which have been examined by the council and found to comply with its rules. Therapeutic agents for every desired effect and in the most acceptable forms are therein listed and briefly described.

So many of the proprietary medicines that

flood the drug market are either worthless or fraudulent that the busy practitioner, having no time for investigation, should be glad to find a reliable source of information concerning them. Those listed among "New and Non-Official Remedies" may be accepted by the profession as ethical preparations worthy of trial in their respective classes. If their names are published in the pages of this JOURNAL, you will also find them in that authoritative list. Write for a copy to the American Medical Association, 535 Dearborn Avenue, Chicago, enclosing 25 cents. If you prefer a cloth-bound copy, send 50 cents. Quite a number of articles have been investigated by the council and accepted since the book was published, a descriptive list of which will be sent with it if you so request.

Removal of Dr. Swan

Our readers will be interested to know that Dr. J. M. Swan, formerly of Watkins Glen, has now moved his office to Rochester, N. Y. The new locality is peculiarly favorable for the recovery of patients suffering with tropical diseases, a class to which he has devoted much attention.

Dr. Swan is known to readers of the JOURNAL by the products of his pen, many of which have graced these pages. Dr. Swan sends us, with the notice of change of address, a most interesting review of Barr's Report on Filariasis and Elephantiasis in Fiji. It is published in Book Reviews.

Where the Gulf Breezes Blow

"Know you the land of the orange and myrtle?" Have you breathed the perfumed air where the balmy breezes from the Mexican Gulf mingle with the pine-laden zephyrs from the inland groves? Have you felt the fullness of peace that blesses him who reposes on some broad veranda overlooking the rippling waters, and watches the white wings of the seagull and the whiter sails of yachts and fisher-boats, and hears the putter of the launches on the water and the hum of the motor cars along the shell-paved beach road? In a word, do you know Biloxi and its wise, witty, genial Dr. Folkes, who presides over its sanatorium? No? Then repent and go there.

Language that should do justice to this Riviera of America would be called exaggeration by those who do not know the truth.

Truly, there is a wealth of attractive possibilities awaiting the one who, whether an invalid or "just tired," makes a leisurely visit to the spot described. No climate can be more perfect than that of this coast the year round. It is a constant inducement to out-of-door exercise. The water tempts the bather to a safe, luxurious plunge; all sorts of fish are "just dying" to be caught; a choice of oar or sail, of gas or steam, invites the would-be navigator to perfect sport devoid of danger; the long "beach road," here shaded by stately magnolias, there by sombre pines or majestic, moss-hung live oaks, leads the lover of the "drive" along a panorama of lovely scenery unexcelled at home or abroad. And to crown the whole, the *Biloxi Sanatorium* sits waiting and ready to supply the home conveniences and comforts that, after all, are indispensable to modern well-being.

And there is Dr. H. M. Folkes, who will be more surprised than anyone else at this bouquet—Dr. Folkes, whose ability as surgeon and physician is known to every member of the S. M. A., and whose genial character secures the friendship of us all—there he stands to welcome the sick or the well, and to do for them as he would be done by—and that means a great deal, for he likes nice things his own self. So let's all go to Biloxi and have a good time, and take along our families and chronics and convalescents. Why not?

The First Step in Practical Eugenics

Someone has said that "it is the first step that counts." This is often true.

Dean Walter F. Sumner, of the Chicago

Vice Commission, has taken a serious and daring step toward the redemption of humanity from the taint of hereditary disease. He has announced that, beginning with Easter, no persons will be married at the Cathedral unless they present a certificate from a reputable physician to the effect that they are normal, physically and mentally, and have neither an incurable nor a communicable disease. This seems to the editor as one of the most noteworthy happenings in the present day and generation. If other church organizations ratify this bold step, there is no knowing where it may lead. The medical profession, almost to a man, will support such a movement, properly limited.

No doubt it would be felt as a great hardship by many individuals, and they would look elsewhere for an authority to pronounce the solemn words to legalize their propagation of tuberculosis, syphilis, gonorrhoea and defective organizations of mind and body. The law-makers will be slow to issue any decree which might foster illicit connections, but when once that bedrock of conservatism—the church—stands as a frowning obstacle to unions detrimental to the future physical welfare of mankind, such marriages will become less and less frequent, until, at last, the health certificate will be required of all. How many innocent brides would have escaped the deep, undreamed-of infection that crippled them for life, or laid them under the sod, had such a prerequisite been everywhere established! How many an unnecessary example of noble self-immolation upon the altar of love and duty will be obviated when no tuberculous person may wed, but all such are kindly cared for by the state? How many families whose records are histories of physical, mental or moral distortion would cease to multiply and replenish the earth with their miserable kind did the law forbid their marriage?

The first step in eugenics has been taken in a way both practical and effective. The whole world will watch the result and hope for its continuance and extension.

The Discoverer of Anaesthesia

The editors acknowledge the receipt of a card bearing the following inscription:

The Provost and Trustees of
THE UNIVERSITY OF PENNSYLVANIA
Request the Honor of Your Presence
In the Hall of the Medical Laboratory Building, Thirty-seventh and Hamilton Walk,
At 2 P. M., Saturday, March 30, 1912,
On the Occasion of the Unveiling of a Bronze Medallion in Honor of
DR. CRAWFORD WILLIAMSON LONG,
1839, *Med. U. of P.,*
Who First Made Use of Ether as an Anesthetic for Surgical Purposes on
March 30, 1842.
Addresses By
Dr. J. William White and Dr. J. Chalmers Da Costa.
Music by the University Glee Club.

Seventy years have passed since this Southern doctor dared to lead a human being into the very "Valley of the Shadow of Death" that he might escape enduring the agony of a surgical operation, confident that when that operation was complete he could bring his patient back to the land of the living with a renewed lease upon life and hope. Had Dr. Long been a denizen of some great Northern or European city, with a collegiate following and a huge hospital for experimental clinics, his fame would instantly have been blazoned to all the world and his name enrolled with the immortals. But in those days little credit was ascribed to the part of the country where he lived, so far as literature, science or art were concerned, and no one paid any attention to his daring feat. When, however, citizens of Boston and Edinborough proclaimed surgical anaesthesia, all the world marveled and

praised. But things are different today. By sheer force of character, abilty and achievement, the physicians of the South have forged to the front of their profession.

Both in surgery and in medicine they have led the way. Was it not McDowell, of Kentucky, who showed the true method of operating for stone? Was not Beatty, of Georgia, the pioneer in scientific ovariotomy? Did not Sims, of Montgomery, create the art of gynecology when he invented the speculum? Was not W. W. Grant, now of Denver, the first to operate for appendicitis, in spite of the fact that he was born in Russell County, Alabama? Did not Norwood, of South Carolina, give us veratrum viride, and are not Southern physicians teaching the world its value in eclampsia? Did not Phares, of Mississippi, give us the blessings of viburnum prunifolium? And so it goes—as one looks back along the history of modern medicine, man after man of Southern blood has made his work conspicuous for good until today many who are the most successful surgeons and physicians of the country received their training in the Sunny South. This is the day of the South. The world unconsciously concedes it. The tardy justice to Long is only a symptom.

The Country Doctor and the Auto

The rise of the automobile and its adoption by all the world in an astonishingly short time is one of the most remarkable events of the present age and generation. It is a curious circumstance also that more physicians use automobiles in their work than any other class of business or professional men. The manufacturer of a well-known auto told a newspaper reporter in Mobile recently that his firm had 51,000 motor cars now in use and that 16,527 of them were owned by physicians. The fact is the automobile just fills a want long felt by the medical profession. It emancipates the doctor from much that was disagreeable in the performance of his duty. He can come home on atrocious nights and drive his car into its proper shelter. Then he can go to the house and be comfortable. No more fumbling with a dirty, ill-smelling harness, coming into general contact with him in spite of care; no feeding of a hungry horse and stirring round generally in dirt and darkness. Even if he is one of the fortunate ones who keep a man servant, yet the rousing him from sleep, either at going or coming, was an irksome thing, especially in bad weather. And then the ever-present smell of horse that clung to those who "did their own hitching up" is gone. But the most precious relief is that afforded by the promptness of service made possible, and the freedom from a pricking conscience when the tired horse had to be forced in spite of fatigue. No lameness, no skittishness to balk his feverish haste. And as for punctured tires and break-downs, they seldom trouble the doctor, for he does not trust his car to the tender mercies of sinister garages, but he has learned to know the anatomy and physiology of his machine as he knows that of mankind, and never lets it get wrong without promptly correcting it. Then the personal satisfaction he feels, as he speeds along on duty bound, is delicious; especially when he meets or passes some doctor who is still "kicking against the pricks" and clinging to the "one-horse shay."

And the driver of the quadruped, in spite of all his bravado, and his declarations that he prefers a horse because he can always know what to expect from him; he, poor fellow, feels like the only man at a reception without a dress suit.

But the horse-drawn doctor is rapidly becoming more and more rare. Already there are fewer such than there are doctors without diplomas. Soon all will have bowed to the prevailing custom, "and we'll all take a ride" in our own autos.

It costs a little more to provide the auto than the horse and buggy, but if one insists upon a really good vehicle and a fine animal, and feed and care are properly provided, there

is less difference than seems necessary at first glance.

A Good Example for State Health Boards

The following article, clipped from a newspaper, expresses so well the desirability of State Boards of Health using the public press for enlightening the public on health matters, that we copy it entire. Every State Board of Health, especially in the South, would do well to follow the example of Georgia:

Believing that a series of short newspaper letters dealing with sanitation and health subjects will appeal to the people of Georgia and result ultimately, through the dissemination of information regarding sanitary methods, in a material decrease in Georgia's death rate, the Georgia State Board of Health has inaugurated a periodic press service which will be offered for publication to every newspaper in the State.

These articles, brief and to the point, will be based on the axiom that everyone seeks and desires to avoid disease. Their purpose will be to tell "how to do it"—to supply the ounce of prevention that makes unnecessary the pound of cure.

Thanks to latter-day educational methods and the growing circulation of good newspapers, people everywhere are becoming more and more impressed with the importance of proper and effective sanitation, and every year brings a wider extension of its applied principles.

But the great work is yet to be done, and it must be done by appealing to the masses through the individual. To awaken in the individual everywhere a sense of the ever-present emergency is the work the board hopes to accomplish. That done, there will be no further question of the application of proper sanitary methods.

Typhoid fever, for example, is a preventable disease; but how many are there who realize the importance of applying methods of prevention until suffering takes toll of the family in prolonged illness or in death? Who thinks to lock the stable only after the horse is gone?

And yet it cannot be questioned that people generally would apply preventive methods if they understood always how to do it, particularly if they realized that absence of disease does not mean immunity, and that it is waiting always to attack where weakness offers opportunity.

In its press service the board proposes to deal with these subjects specifically and in simple terms, to tell what to do and how to do it, satisfied that, if the information is generally applied, it will result in materially improved health conditions and a consequent lower death rate throughout the State.

BOOK REVIEWS

SURGICAL CLINICS OF JOHN B. MURPHY, M.D.

At Mercy Hospital, Chicago. Volume I, Number 1. Octavo of 133 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1912. Published bi-monthly. Price per year: Paper, $8.00; cloth, $12.00.

This, the first number of the "Surgical Clinics of John B. Murphy, M.D.," represents a new departure in medical publishing. It is a departure, however, that must appeal at once to the medical man, because it is extremely practical clinical teaching.

These are not students' clinics, but Dr. Murphy's famous clinical talks at Mercy Hospital, Chicago, for physicians only. A point we want to mention is that these "Clinics" are published just as delivered by Dr. Murphy, being reported verbatim by an expert medical stenographer. In this way they retain all that individual force and charm so characteristic of the clinical teaching of this distinguished surgeon.

These "Clinics" are being issued in serial form, one number every other month (six numbers a year). Each number is to contain about 130 octavo pages, illustrated.

Volume I contains illustrated clinics of twenty operations. They are conducted on a very simple, practical plan. First he gives the history of the patient, then the present trouble, including symptomatology and duration, and finally "Comments and Operation."

The comments are exceedingly practical and illuminating. One who has listened to the musical voice of this tall, dignified surgeon-teacher, can almost visualize his presence while reading these comments. The work is *indispensable*.

FILARIASIS AND ELEPHANTIASIS IN FIJI.

Being a Report to the London School of Tropical Medicine. With many colored and monochrome plates, numerous charts and a map. By P. H. Bahr, M.A., B.C., D.T.M.&H., Cantab, M.R.C.S., Eng., L.R.C.P. London: Witherby & Co., 1912.

In recent years there have been some observers who have expressed a doubt concerning the etiological relation between filariasis and elephantiasis and other lesions generally regarded as due to filarial infection.

In 1909, the London School of Tropical Medicine organized an expedition in charge of Dr. P. H. Bahr, for the purpose of investigating the two most important diseases of the Fiji Islands: elephantiasis and filarial diseases, and epidemic and endemic dysentery.

Dr. Bahr arrived in the Fiji Islands in January, 1910, and spent about thirteen months at work upon these two problems. In regard to filariasis and filarial diseases the general result of his work has been to confirm the opinion held by various writers that elephantiasis, lymphatic vari, lymph scrotum, etc., are dependent upon the presence of adult filariae in the lymph nodes. He found that 27.1 per cent of the native inhabitants of the Fiji Islands harbor microfilariae in their blood, and there are reasons for

believing that at one time or another nearly every Fijian is the subject of filariasis. After the proportion of Fijians carrying microfilariae has been added to the number affected by filarial diseases, but without microfilariae in the peripherial blood, 52.5 per cent of the entire poulation shows evidence of infection.

Dr. Bahr has found that all Fijians, as well as foreigners who have resided in the Islands for a considerable time, present a well marked eosinophilia, without evidence of infection with intestinal or other metazoan parasites. He has also observed that patients who had microfilariae in their blood lost them while they were being studied.

The microfilariae discovered in the blood of the inhabitants presented no periodicity, and the question naturally arose whether the parent worm was filaria Bancrofti or a new species. The author seems to be of the opinion that the parent worm is filaria Bancrofti, and that the absence of periodicity is dependent upon the habits of the intermediate host of the parasite in the Fiji Islands; stegomyia pseudoscutellaris, which is a day-biting insect. The author finds that in comparison with the natives of China, India, and the West Indies, the natives of the Fiji Islands and probably of the other South Pacific Islands are peculiarly liable to elephantiasis of the upper extremities. On the other hand, they seem to be less liable to chyluria, lymph scrotum, varicose groin glands, and other forms of lymphatic varix depending on filarial obstruction of the thoracic duct above the points of entrance of the chyle vessels In many cases the adult filariae occur in large numbers in the tissues, especially in the lymph nodes and the lymphatic vessels, but also in the epididymis, testicle, and tunica vaginalis. These latter circumstances may account for the infecundity of the Fijian. The lymph obtained from the various inflammatory foci in cases of elephantiasis and lymphatic varix may be sterile, or it may contain various bacteria, although it is usually found to be sterile.

The author has arrived at no explanation of the absence of microfilariae from the peripherial blood in cases of undoubted infection with living filariae. He is of the opinion that mosquito destruction carried out on the same lines as for the prevention of malaria and yellow fever is the only means likely to prove of service in eradicating or seriously mitigating this important helminthiasis.

Dr. Bahr's report is an excellent monograph of 192 pages, containing many tables and illustrations, and a bibliography of sixty-six titles.

J. M. SWAN.

INFECTIONS OF THE HAND.

A Guide to the Surgical Treatment of Acute and Chronic Suppurative Processes in the Fingers, Hand and Forearm. By Allen B. Kanavel, M.D., Assistant Professor of Surgery, Northwestern University Medical School, etc. Illustrated by 133 engravings. Lea & Febiger, Philadelphia and New York, 1912.

This is a book for doctors, and there are few doctors who could not occasionally consult its pages with advantage to themselves and their patients. Chapter V is devoted to "Diagnosis in General," and Chapter VI to "General Principles of Treatment," and are full of practical and valuable instruction.

Dr. Kanavel is an ardent operator, and generally leads the physician in the right direction, but in some cases ordinary practitioners will prefer other means to the knife.

In ordinary paronychia, or "runround of the nail," for instance, most cases seen within the first 24 hours can be promptly cured by slitting the dead, gray, unfeeling skin over the secretion and letting it escape, then inserting one or two drops of saturated solution of nitrate of silver. This is so nearly a sure cure as anything can be, and often painless. Generally, however, his instructions are sensible and conservative, and the plan of the work is excellent. Such a book has long been needed and the reviewer predicts for it a solid and enduring popularity.

A HANDBOOK OF MEDICAL DIAGNOSIS.

In Four Parts, for the Use of Practitioners and Students. By J. C. Wilson, A.M., M.D., Professor of the Practice of Medicine and Clinical Medicine in the Jefferson Medical College and Physician to its Hospital, etc. 418 text illustrations and 14 full-page plates. Third edition, thoroughly revised. $6.00 cloth. Philadelphia and London: J. B. Lippincott Company.

Doctors who graduated a generation or more ago cannot help envying the modern student the superb facilities in the way of laboratories and text-books now at his service, sometimes forgetting that though present aids to learning are more abundant now than then, a great many more subjects are presented for his mastery than was then the case.

Be that as it may, the book under consideration certainly presents the study of the art of medical diagnosis in a masterly manner. It maps the body regionally for examination, then tissue by tissue, function by function, with their possible derangements are presented in an orderly sequence for consideration. The illustrations illustrate, which is not always the case, and the description of symptoms is fine and complete.

In scarlet fever, for instance, it gives the definition, etiology, exciting cause, symptoms, stages, varieties, complications and sequels. Then differential diagnosis from eight other conditions, and finally the prognosis. No treatment is considered. This character of thoroughness characterizes the whole book. Of course it has nothing to say about any medication or management, being confined to diagnosis.

It is an extremely valuable addition to a doctor's library.

SEE REVIEW BOTTOM PAGE 229

THERAPEUTICS

THE SPECIFIC TREATMENT OF PELLAGRA.

An article on "The Specific Treatment of Pellagra," by Dr. E. H. Martin, of Hot Springs, Ark., and read at the sixth annual meeting of the Medical Association of the Southwest at Oklahoma City, October, 1911, suggests some interesting conclusions.

His experience with intravenous injections of Salvarsan has convinced him that it is a satisfactory remedy if rationally used. He believes that the excessive and dangerous reactions that have sometimes followed its administration were due to the large amounts of pellagrous toxin liberated by the destruction of too many of the as yet undiscovered parasites causing the disease, and not to the effects of Salvarsan upon the tissues themselves.

He argues that as it has been proven that such injections cause no reaction in healthy persons, but do cause them in syphilitics and pellagrins, it is the toxins of those parasites, released by their destruction, that cause the reaction. The practical deduction is to give smaller doses, two decigrams, for first injections, thus destroying many, but not too many, of the parasites of a proper age for killing; then, after ten days, four decigrams, and still ten days later six decigrams, which is the regulation amount—all intravenously.

The results were that few cases had a reaction of more than one degree after the first or second dose, and almost none reacted to the third. Though his experience was limited to fifty cases of all degrees of intensity, he seems to have reached some very tenable conclusions, as follows:

That the character of the reaction, the duration of the fever especially, shows that the germs of pellagra are located principally in the brain and spinal cord.

That the endotoxins released by the destruction of the pellagra germs are so highly toxic to the human host that the dose of the drug must be proportioned so as to not destroy too many micro-organisms at one time, or the results may be disastrous to the patient. Observing patients given large doses of Salvarsan, one can readily believe that in some cases a condition paralleling the so-called "congestive chill" in malaria might be produced.

Salvarsan does not cure pellagra in one dose, owing to the invulnerability of the germs at an early stage of development.

Prompt disappearance of symptoms shows that the older germs are killed.

That small and increasing doses, repeated within the time required for the development of the germs from the invulnerable stage to just before the stage of reproduction, gives us a rational treatment for pellagra and should offer as much certainty of a cure as quinine in malaria when properly given with respect to the seventh day.

AN IRON PREPARATION THAT DOES NOT IRRITATE THE DIGESTIVE TRACT.

One of the most profusely advertised of all the unacceptable proprietary medicines is a certain liquid preparation of iron whose trademarked title suggests to the purchaser that the medicinal contents of the bottle are predigested by pepsin. Its popularity really depends partly upon its claims to contain iron in an unirritating form, and partly upon a pseudo-scientific style of advertisement which deceives many physicians and impresses the public. It is sold at a price far above its intrinsic value, and we should protect our patients from such extortion by prescribing for those who need such medication an official preparation found in the National Formulary, and which, for palatability, efficiency and unirritating quality, is unexcelled by any proprietary, however widely advertised.

It is prescribed by thousands of physicians in preference to any similar iron. It is called

LIQUOR FERRI ALBUMINATI, N. F.

The solution of albuminate of iron contains approximately two-thirds of one per cent of metallic iron in the form of albuminate. The average dose is 8 Cc. (2 fluid-drams), representing 4-5 grain of metallic iron. It is flavored with aromatic elixir and contains 22 per cent of alcohol.

The solution is prepared by the action of oxy-chloride of iron on egg albumin. It is quite clear, palatable, of a rust-brown color, and has a faintly acid reaction. It may be given in milk.

Many practitioners consider this solution the most readily assimilable of iron preparations, but our present knowledge of the pharmacology of iron would indicate that all the different forms of the metal, organic or inorganic, have the same action in the body—that is, they behave chemically and physiologically alike. The prepaartion is, however, one of the least irritant to the stomach.

All compounds of iron administered by the mouth are first converted into loose organic compounds, in which form they are absorbed from the entire surface of the intestinal canal, but particularly from the duodenum. The absorbed part penetrates the epithelium, passes through the stroma into the lacteals, and from here to the mesenteric lymph glands and through the thoracic duct into the blood. From the blood it is deposited, in an easily decomposed organic form, in the cells of the haematopoietic organs, in the liver and red marrow, and particularly in the spleen, as a "reserve stock." The utilization of the iron, its transformation into hemoglobin, occurs only as needed, so that the total quantity of hemoglobin never rises above normal.

Hence the administration of iron is useful only in those conditions in which the normal income or the assimilation of iron is deficient. According to the above correct theory, which is that of Tartakowski (1903-1904), it is, therefore, *practically useless for the physician to employ any of the numberless specialties or special secret compounds of iron in the treatment of disease. Nothing can possibly be gained, and their employment only adds to the patient's expense for the benefit of the manufacturer.*

Very brilliant results are secured by the administration of this preparation in most instances of anemia. Maximum doses, in combination with a correct diet, should prove of great benefit in diseases of this character. It is a preparation worthy of most careful study. The tendency to constipation, if present, must be met by cascara sagrada, aloes or other cathartics.

Experience teaches that in most instances the tonic and restorative effect of iron preparations is increased by the addition of a minute amount of some mercurial to each dose. The author has for years found the following simple combination entirely satisfactory. It has seemed to be very useful in cases of menstrual irregularities accompanied by anaemia:

Liquor Ferri Albuminati.....f. ounces VIII
Hydrargyri Bichloridi .....gr. ss.

M. Ft. Sol. Sig. Two teaspoonfuls in a little milk or water, three times a day, after food.

Speaking of menstrual troubles calls to mind another valuable preparation which will not be found wanting in suitable cases:

TINCTURA VIBURNI OPULI COMPOSITA, N. F.

The Compound Tincture of Virburnum represents in each 4 Cc. (1 fluid-dram) dose the following: 2 grains each of virburnum opulus and dioscorea, ½ grain of scullcap, 3 grains of cloves and 4 grains of cinnamon. It contains about 85 per cent of alcohol and 6½ per cent of glycerine.

One of the chief functions of this combination is to quiet the movements of the uterus and to lessen the uterine flow. There is abundant testimony at hand to confirm the value of viburnum in threatened miscarriage. Dr. Phares, of Mississippi, as early as 1866, ascribed to it valuable nervine, antispasmodic and tonic properties in the above conditions,

and the present formula for the compound tincture yields what is possibly a most active and reliable therapeutic agent for these conditions.

It may at times be necessary to increase the amount of viburnum in the preparation, and this is readily accomplished by the addition of the fluid extract. It sometimes causes nausea and vomiting, and in such cases some other remedy must be substituted. It is best administered in hot water, preferably sweetened.

There are many proprietary "viburnum" compounds on the market under various fanciful names, and of somewhat similar composition to the above, but it is well to guard against their usage for several reasons. One is that their composition is an unknown quantity, and another is that the "original" package is, as a rule, accompanied by literature, and which is a natural and very prolific cause of self-medication on the part of the laity.

For threatened abortion the fluid extract viburnum prunifolium is preferable, combined with an opiate if absoltuely necessary. Absolute rest supine is imperative, continued until threatening symptoms cease.

ABSTRACTS AND COMMENTS.

LIQUOR AS A BEVERAGE.

At a recent meeting of the Seaboard Medical Association of North Carolina and Virginia, held at Newport News, the following expressions were offered by Dr. Roy K. Flanagan, of the State Health Department of Virginia:

Organic Disease Versus Germs.

Do typhoid fever, diphtheria, smallpox, measles, malaria and Bubonic plague constitute the complete roster of the important diseases we know how to prevent? I trow not. Look about you. What is the matter with John Smith? Oh! he has the rheumatism. What's the matter with Henry Jones? Oh! he has diabetes. Poor Tom Brown is down with Bright's Disease, and will never get up. Will Johnson, as you all know, has had a stroke of apoplexy, and Jim Robinson, sad to relate, has just been taken to Williamsburg with softening of the brain. Do tell! What an awful dispensation of Providence. Bosh!

Fixing the Responsibility.

The devil may have had something to do with the bulk of these diseases; the Lord, never. You know, and I know, that these men, cut down in their prime. but for one common cause would stand strong and well before us. Diverse as their ailments are, the same thing brought them down, and though Taboo be written large across the subject, and though commercialism and greed have built about the practical consideration of this common cause a Chinese wall, the fact remains that alcoholic drink is the arch purveyor of sickness and death to mankind. Say what you will, make all the allowance you please for what has been called the wild eyed agitator's exaggerated vaporings, but we, we medical men, can least of all blink the glaring truth that disease and death stalk hand in hand with the use of liquor as a beverage.

FEWER DRUGS BUT MORE RELIABLE.

I do not believe that there is a licensed physician in the State who cannot write a better prescription than a great many of the proprietaries, and quite a number, too, of the preparations put out by the manufacturing chemists, if he will only give the matter the proper time and thought. Now we do not know the other phases of our noble profession too well, or study them too much; but we do study drugs too little. We do not need more drugs, but we do need purer and more reliable preparations of these we already have. Instead of a thousand regular pharmaceuticals, and almost numberless preparations put out by the manufacturing chemists, the average physician does not use more than one hundred and fifty in his every day work, and he who has studied and knows the action of seventy-five reliable preparations is right well armed for the battle against disease. Now we do not wish to be understood to be against the appearance of new preparations, if they possess real merit.

If a new preparation is more reliable, safer, and in every way possesses more merit than the preparation that we already have, that is what we want; but if it is only a rehash of some preparation, which the profession has been using for decades, parading under a high sounding name, we have enough of these already, and in the street parlance, are "sufficiently amused." And if the profession possessed a more perfect knowledge of drugs, substitution on the part of our pharmacists would also decrease, and the two professions would be brought closer together.—Dr. J. C. McCombs, in Charlotte Medical Journal, January, 1912.

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This is gaining at the rate of two hundred and twenty-six thousand souls every year for the past ten years. Evidently the Southern States afford good ground wherein to stake out business territory, for as population grows so grows business. The Southern Medical Journal covers this rich territory thoroughly than any other publication, so far as business that interests medical men is concerned. Don't you think it will pay you to investigate such an opening to display your interests to advantage?

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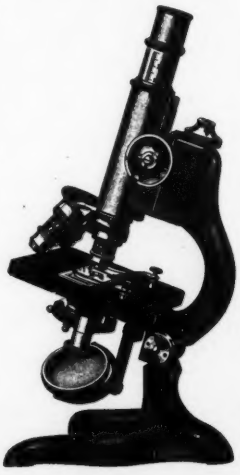

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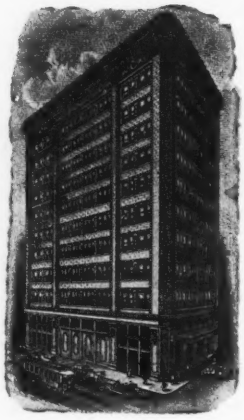

WE EXERCISE

The most scrupulous care in the manufacture of our

Pharmaceuticals

A bottle sealed from our laboratory is an assurance of quality within that would be hard to express in words, a trial only could adequately express.

Van Antwerp's

"The Best Only"

PHARMACEUTICAL LABORATORY

VAN ANTWERP BLDG. **MOBILE, ALA.**

Carbohydrates in Infant Feeding

For many years we have made strong claims regarding the advantage of maltose—the predominating carbohydrate in Mellin's Food—in infant feeding. Physicians who have not made use of Mellin's Food in the modification of milk will find much to substantiate our claims by reviewing recent pediatric literature. The unvarying amount of maltose as given in the analysis* of Mellin's Food enables the physician to so modify milk that any percentage of this carbohydrate, best suited to the needs of the individual infant, may be readily obtained.

The carbohydrate content of Mellin's Food answers all the requirements for a sugar in infant feeding

*This analysis will be sent to any physician upon request.

MELLIN'S FOOD COMPANY,
BOSTON, MASS.

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Fruit Nutrition in Fluid Form

PHYSICIANS prescribe Welch's Grape Juice whenever and wherever a liquid diet is indicated, and with most gratifying results.

Welch's Grape Juice is made from the choicest clusters of Concords from the best vineyards in the great Chautauqua belt.

Welch's
Grape Juice

The method of its making—the grapes being received fresh from the vines, and washed, rinsed, stemmed and pressed without the touch of human hands; and the juice being immediately pasteurized and hermetically sealed—retains every element of nutrition in the body of the grape.

Welch's Grape Juice is rich in health-making grape sugar, mineral salts and fruit acids. It has, moreover, the fresh-fruity flavor and delightful aroma of the full-ripe grape.

It tempts the uncertain appetite of the fever patient and the convalescent; the most delicate stomach retains it; the assimilative organs are not taxed by it.

Sold by leading dealers everywhere. 4-ounce bottle mailed for 6 cents. Sample pint bottle, express prepaid, 25 cents. Literature of interest to all physicians mailed on request.

The Welch Grape Juice Company
Westfield, N. Y.

FLUIDEXTRACT ERGOT P-M CO.

U. S. P. VIII FORMULA

Has been sold under a dated label for two years past.

Medical literature contains many reports showing that liquid preparations of Ergot change and lose their efficiency with age and investigators unite in asking that the date of manufacture be given on the labels of these articles.

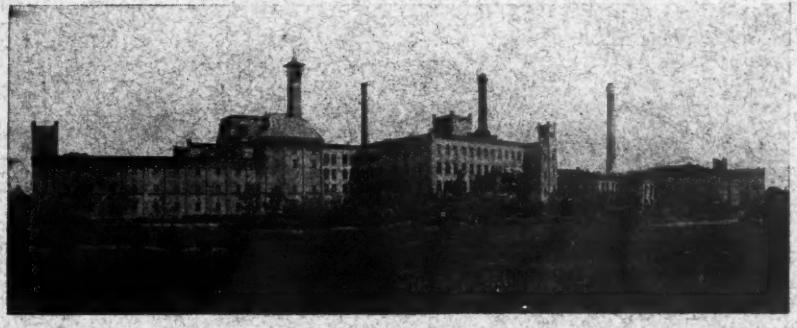
Consider the importance of having this drug right *when sold*—how much more necessary it is that it be right *when used!* P-M Co. dated label protects our customers.

This dated label is evidence of our desire to co-operate with the medical profession in securing drugs that are not only pure but also at the highest point of efficiency.

FLUIDEXTRACT ERGOT P-M Co. is supplied in

2-oz. bottles. 4-oz. bottles. 8-oz. bottles. Pint bottles.

PITMAN-MYERS CO., Chemists, 111 No. Capitol Avenue, Indianapolis, Ind.



The Largest, Best Equipped and Most Sanitary Plant of Its Kind in the World.

The Home of the Original and Only Genuine

HORLICK'S MALTED MILK

Samples sent on request. **RACINE, WIS., U. S. A.**

Thyroprotein Beebe

A Preparation of the Active Principle of the Thyroid Gland.

This product consists of certain proteids of normal thyroid glands, extracted, purified, assayed and adjusted to a standard content of 0.33 per cent. of iodine. It is diluted with the necessary amount of lactose to make two-grain tablets, which we supply in three denominations, containing, respectively, 1, 2 and 5 per cent. of Thyroprotein.

The 1- and 2-per-cent. tablets are used in the treatment of various types of goitre, the average dose being one tablet three times daily. The 5-per-cent. tablets are intended for administration in metabolic disorders, as skin diseases, affections of the joints, myxedema and cretinism.

Thyroprotein has been employed for upward of two years by a number of experienced clinicians and in a wide variety of pathologic conditions. It is offered to the medical profession with full confidence that it will satisfactorily displace the crude and more uncertain thyroid preparations heretofore available.

Supplied in 2-grain tablets, bottles of 50. Three strengths: 1%, 2% and 5% of Thyroprotein.

FULL DESCRIPTIVE LITERATURE ON REQUEST.

Home Offices and Laboratories,
Detroit, Michigan.

PARKE, DAVIS & CO.

Bacterial Vaccines

For the Treatment of Bacterial Infections.

Acne Vaccine (Acne Bacterin).—For non-pustular acne due to the Bacillus acne.
Colon Vaccine (Colon Bacterin).—For colon infections.
Combined Vaccine (Van Cott).—For erysipelas, puerperal sepsis, etc.
Furunculosis Vaccine.—For boils, carbuncles, pustular acne, etc.
Gonococcus Vaccine (Gonococcus Bacterin).—For acute gonorrhea and its complications.
Gonorrheal Vaccine, Combined (Gonorrheal Bacterin, Combined).—For gonorrheal infections complicated by the presence of staphylococci.
Staphylococcus Vaccine (Albus) (Staphylococcus Albus Bacterin).
Staphylococcus Vaccine (Aureus) (Staphylococcus Aureus Bacterin).
Staphylococcus Vaccine (Citreus) (Staphylococcus Citreus Bacterin).
Staphylococcus Vaccine, Combined (Staphylococcus Bacterin, Combined).—For furunculosis and carbuncle, sycosis, suppurative acne, etc.
Streptococcus Vaccine (Streptococcus Bacterin).—For erysipelas, puerperal septicemia, etc.
Typhoid Vaccine (Prophylactic).—For preventive inoculation only.

Supplied in 1 Cc. rubber-stoppered glass bulbs and in 1 Cc. syringe containers.

HANDSOMELY ILLUSTRATED BOOKLET FREE.

Home Offices and Laboratories,
Detroit, Michigan.

PARKE, DAVIS & CO.